

# UK-India Deep Dive Workshop: Anaerobic Digestion

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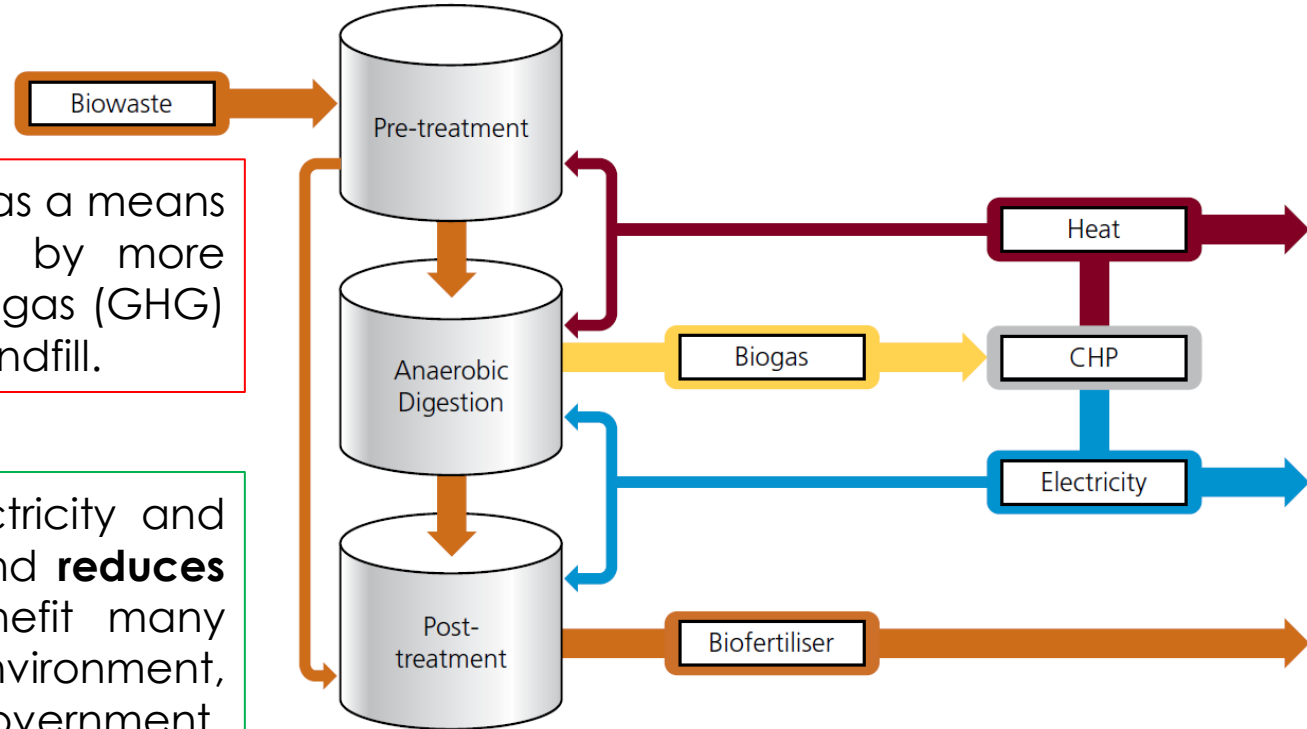


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# Anaerobic Digestion

❖ **Net Zero target:** AD can play an important role as a means of dealing with organic waste and avoiding, by more efficient capture and treatment, the greenhouse gas (GHG) emissions that are associated with its disposal to landfill.

❖ **AD benefits:** recovering energy including electricity and biofuels and producing valuable biofertilizers and **reduces our carbon footprint.** AD can potentially benefit many different peoples, the local community, the environment, industry, farmers and energy entrepreneurs and government.



<https://www.gov.uk/government/publications/anaerobic-digestion-strategy-and-action-plan>

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# Anaerobic Digestion: UK Perspective

## Technologies:

- ✓ There are currently 650 operational AD facilities (excluding traditional water treatment plants) in the UK.
- ✓ The digester can be wet or dry, mesophilic or thermophilic, and single or multistage.
- ✓ Currently in England the most common type is the mesophilic, wet, single style.

## Feed-stocks:

- ✓ food waste from both domestic and industrial sources,
- ✓ farm manures and slurries, sewage sludge and purpose-grown crops.

## Funding available:

- ✓ **Rural Community Energy Fund:** The Rural Community Energy Fund (RCEF) is a £10 million programme, now run by BEIS
- ✓ **Anaerobic Digestion Loan Fund (ADLF):** £10 million fund designed to support the development of new AD capacity in England.
- ✓ **On Farm Anaerobic Digestion Loan Fund:** £3 million initiative designed to support farm-scale AD capacity in England.
- ✓ **Scottish Recycling Fund:** £3.8M fund established by Zero Waste Scotland and Scottish Enterprise to develop or expand materials reprocessing capacity and remanufacturing facilities in Scotland.

- ✓ AD Plants Farm Fed
  - ◇ CHP
  - ◇ BtG & CHP
  - ◇ Heat only
  - ◇ BtG
  - ◇ Cooking gas
- ✓ AD Plants Waste Fed
  - CHP
  - BtG & CHP
  - BtG
  - Heat only
  - BtG, CHP and Transport
  - Transport Fuel



<https://www.biogas-info.co.uk/>

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# Anaerobic Digestion: UK Perspective

## Existing project area: case studies

- [Staples Vegetables](#) built an anaerobic digester to process out of specification and by-passed vegetables created by the existing vegetable harvesting and packaging process. Maize is also being grown on the farm to supplement the vegetable feedstock.
- [GWE Biogas](#), based in East Yorkshire, was established to convert up to 50,000 tonnes of organic waste each year sourced from local authorities, food manufacturers and supermarkets, to energy.
- [BV Dairy](#) was looking to cut waste disposal costs, but quickly discovered that with anaerobic digestion it could also make savings to its significant energy bills.
- [Kemble Farms](#), Cirencester – 300kWe, slurry and silage.
- [Copys Green Farm](#), Norfolk – 140kWe, slurry silage and cheese making waste.
- [Hill Farm](#), Shropshire – slurry only, self-built plant, using heat-only on-site.
- [Lodge Farm](#), Wrexham – 125kWe, slurry and chicken litter.
- [Tuquoy Farm](#), Orkney – 6kWe, beef manure and grass silage.
- [Bank Farm](#), Montgomery – 125kWe, slurry, chicken litter and apple pomace.
- [Ryes Farm](#), Dumfries – slurry-only, using heat-only on-site.
- [Corsock Farm](#), Kirkcudbrightshire – slurry and glycerol, using heat-only on-site.

[NNFCC](#) offers support to businesses in bioenergy and AD; including identifying and applying for funding to support feasibility, project planning and development.

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# Anaerobic Digestion: UK-India common interest and future perspective

## Gaps in the field

!!!!This is an output resulted from the first UK-India meeting!!!!  
Open for Deep dive

- **India**-storage challenge (CNG, and biogas), centralised network management failure, technology conversion, Aviation fuel test-lab scale, LCA, waste management; poultry waste is a potential-decentralised manure, currently protein content imported. Possible AD based NH<sub>3</sub> and H<sub>2</sub> production from reformation of biomethane from anaerobic digestion. Policy tension, legal pressure on clean water.
- **UK**- issues include storage on farms, contamination of the waste due to it being mixed as well as the fact that waste has to be driven to far away locations where there re AD plants rather than having local plants which would make the process more efficient. No focus on nutrients recovery, co-digestion not being used, but there is potential. Optimising of co- digestion and Policy needed.

## Key research needs for UK-India Collaboration

- Resource assessment and data management (India), [storage and pre-treatment challenges \(UK-India\)](#), focus on nutrients recovery (UK-India), [possible NH<sub>3</sub> and biohydrogen production \(UK-India\)](#), Local/rural AD (UK-India), [Aviation fuel \(UK-India\)](#), policy on co-digestion (UK-India) and [Societal acceptance challenges in rural India](#).

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