£22.5 million funding to turn industry waste into environmental wins

- Industry set to benefit from £22.5 million government funding to reduce waste and boost recycling in textiles, electronics, metals, construction and chemicals
- emissions from the UK's textiles industry alone are almost as high as those from cars used for private trips
- research could stop the generation of 154 million tonnes of mineral waste each year, enough to fill 30,000-Olympic-sized swimming pools

Industries across the UK will be helped to tackle waste, boost recycling and build back greener from coronavirus thanks to £22.5 million of government funding for 5 state-of-the-art research centres in London, Loughborough and Exeter.

The research centres will explore how the reuse of waste materials in the textiles, construction, chemicals, transport, electronics and metal industries can protect the environment and boost the economy.

Emissions from the UK's textiles industry alone are almost as high as those from cars used for private trips, and it is estimated that £140 million worth of clothing goes into landfill each year.

The better reuse and recycling techniques developed by these new centres – expanding the so-called 'circular economy' – will help to reduce greenhouse gas emissions, preserve natural resources and provide new opportunities for UK industries. Research has shown that expanding the circular economy could create up to 500,000 gross jobs by 2030.

Energy Minister Kwasi Kwarteng said:

> We want to further the UK's status as a world-leader in finding green solutions to industrial challenges, and projects like these are excellent examples of placing manufacturers at the forefront of the green industrial revolution.
>
> I am pleased to support these new cutting-edge research centres that will transform the way industry reuses and recycles materials – another great step forward as we build back greener from coronavirus and achieve net zero emissions by 2050.

Environment Minister Rebecca Pow said:

> Creating a more circular economy for our waste and resources lies at the heart of this government's transformative agenda for the environment, and we are committed to going further and faster to

> reduce, reuse and recycle more of our resources.
>
> These new research centres will play a vital part in creating a cleaner and more sustainable waste sector, thus helping us to better protect the environment and leave it in better shape for the next generation.

One of the 5 new centres, the Centre for Mineral-based Construction Materials, led by University College London, will develop more efficient use and recovery of mineral materials such as construction stones, cement and brick. This project will reduce UK minerals extraction by more than half a million tonnes per day and stop the generation of 154 million tonnes of mineral waste each year, enough to fill 30,000-Olympic-sized swimming pools.

To tackle the emissions from the UK's textiles industry, one of the 5 new centres, the Interdisciplinary Textiles Circularity Centre, led by the Royal College of Art, aims to lessen the environmental impact of clothing in the UK by using household waste and used fabrics to develop new textiles instead of relying on imported materials.

Executive Chair of the Engineering and Physical Sciences Research Council, Professor Dame Lynn Gladden, said:

> The move to a circular economy, where we use less resources and reuse more materials, is central to the UK's green industrial revolution and our commitment to achieving a net zero economy by 2050.
>
> By bringing together a wide range of academic disciplines with industry partners the centres will catalyse innovative new technologies and approaches that will boost the UK economy and benefit the environment.

The Interdisciplinary Circular Economy Centres are funded by the UK government as part of UK Research and Innovation's Strategic Priorities fund. In addition to the UKRI Government investment, £11.2 million of funding and in-kind support is being provided by external partners, as well as support from host universities.

Today's funding follows on from July's announcement of £350 million to cut emissions in heavy industry and accelerate the UK's economic recovery. The multi million-pound investment is playing a vital role in helping businesses to decarbonise across the heavy industry, construction, space and transport sectors and to secure the UK's place at the forefront of green innovation.

The Interdisciplinary Circular Economy Centres are funded by UK Research and Innovation (UKRI) through the Strategic Priorities fund. In addition to the UKRI investment, £11.2 million of funding and in-kind support is being provided by partners.

Interdisciplinary Textiles Circularity Centre

The Interdisciplinary Textiles Circularity Centre, led by the Royal College of Art, aims to reduce our reliance on imported and environmentally and ethically impactful clothing materials and develop new ‘designed and made in the UK’ industries. They will lead research to turn post-consumer textiles, crop residues and household waste into renewable materials for use in textiles, developing new UK-based supply chains from waste management and farming through to textile production and design, and consumer experience.

Interdisciplinary Circular Economy Centre

The Interdisciplinary Circular Economy Centre for Mineral-based Construction Materials (ICEC-MCM), led by UCL, will explore how better design and manufacturing of products and structures made from mineral materials such as aggregates, cement and brick can help the UK’s construction industry to do more with less, and reduce waste, pollution and costs. For example, what does industry need to know about waste products such as excavation clay and metallurgical waste, to substitute them for mined and quarried materials used in construction products? How can the components of buildings that have been demolished be reused to minimise costs and environmental impacts?

Interdisciplinary Centre for Circular Chemical Economy

The Interdisciplinary Centre for Circular Chemical Economy, led by Loughborough University, aims to reduce the fossil reliance of the UK’s £32 billion chemical industry by creating and implementing methods to recover and reuse olefins from end-of-life products and CO2 emissions. Olefins are the raw materials for 70% of all organic chemical production, used to create synthetic fibres, plastics and detergents for example. As well as developing new transformative technologies, the centre will work with industry, consumers and other stakeholders to develop sector-wide solutions to reduce the industry’s environmental impact and increase its productivity.

Interdisciplinary Circular Economy Centre in Technology Metals

The Interdisciplinary Circular Economy Centre in Technology Metals, led by the University of Exeter, will explore how to create a circular economy for the technology metals such as cobalt, rare earths and lithium that are essential in all clean and digital technologies including electric cars and wind turbines. The centre aims to develop a new cycle, right from the first stages of extraction, to enable secure and environmentally-acceptable circulation of these crucial materials within the UK economy.

Interdisciplinary Centre for Circular Metals

The Interdisciplinary Centre for Circular Metals, led by Brunel University London, aims to make the UK the first country to fully circulate metals by 2050, which would deliver huge environmental benefits with the extraction of just 7 major metals accounting for 15% of global energy demand and 12% of global emissions. While the UK imports almost all metals, the centre will look at how metals can be recycled for use in sectors such as aerospace,

automotive and electronics, which could contribute more than £100 billion to the UK economy over the next decade.

The Centres form part of the £30 million UKRI Interdisciplinary Circular Economy programme, funded by the UKRI Strategic Priorities Fund, and delivered by the Arts and Humanities Research Council (AHRC), Biotechnology and Biological Sciences Research Council (BBSRC), Economic and Social Research Council (ESRC), Engineering and Physical Sciences Research Council (EPSRC), Natural Environment Research Council (NERC), and Innovate UK, with DEFRA and BEIS.

As well as the interdisciplinary centres which have been allocated £4.5 million in UKRI funding each, UKRI will provide £2.5 million of funding to enable small and medium enterprise involvement with centres,and support an integration hub to provide national leadership and coordination, driving knowledge exchange and whole-systems learning:

The Strategic Priorities Fund (SPF) is one of the UK's largest, publicly funded, programmes of work to spearhead multi and inter disciplinary research and innovation. Established in 2018 and led by UKRI, the SPF aims to:

- drive an increase in high quality multi and interdisciplinary research and innovation
- ensure that UKRI's investment links up effectively with government research and innovation priorities and opportunities
- ensure the system responds to strategic priorities and opportunities

A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems, according to the Ellen MacArthur Foundation.

Research from Green Alliance looks into how development of the circular economy in Britain can help to tackle key labour market challenges, such as regional and occupational unemployment.

In 2018, the government published their Resources and Waste Strategy for England, setting out how we will preserve material resources by minimising waste, promoting resource efficiency and moving towards a circular economy in England.