

From monitoring climate change to avoiding space debris – pioneering space technology gets government cash boost

Recipients include the University of Leeds, which will develop 3D printing methods and liquid-crystal technology, similar to that in our television screens at home, to develop far-infrared sensors for studying climate change and star formation.

Another project, led by Rocket Engineering in London, will create a compact propulsion system the size of a house brick for use in nano and small satellites. The engines use electromagnets to enable the satellites to move for in-orbit spacecraft servicing or space debris mitigation.

The funding comes from the UK Space Agency's National Space Technology Programme (NSTP), which supports development of space technologies, encourages collaboration between industry and academia, and encourages new entrants to the space sector.

Science Minister Amanda Solloway said:

This investment will help UK space businesses fast-track innovative technologies with real scientific and commercial potential, supporting our aim for the UK to secure 10 percent of the global space market by 2030.

From observing climate change from space to protecting our satellites from hazardous space debris, these technologies could expand our reach in space and improve life here on Earth.

Since launching in 2011, NSTP has supported 300 projects. Previous successful applicants include Belstead Research Ltd, who improved drag sail methods for removing space debris, and a collaboration between the University of Bristol and Rutherford Appleton Laboratory to track and analyse volcanic ash clouds, which can damage jet engines.

Cryogenic testing of additive manufactured propellant pump. Credit: LENA Space

Charles McCausland, Head of Major Projects and Technology Development, UK Space Agency, said:

The UK Space Agency has a strong track record of backing early-stage technologies with future potential, and these five projects promise to pave the way for further space innovation.

As the UK extends its ambitions for the space sector, early support of this kind could prove decisive in helping us get ahead in an increasingly competitive global environment.

The UK has a thriving space industry that generates an income of £14.8 billion each year. The UK Space Agency works closely with industry and academia to fund new technologies, boost skills, promote growth and inspire careers in the space sector.

The announcement comes during British Science Week (5 – 14 March), a 10-day programme of thousands of events running throughout the whole of the UK with the aim of celebrating science, engineering, technology and maths, coordinated by the British Science Association and funded by the UK Research and Innovation (UKRI).

LENA Space, Modular Propulsion Engine (MPE) Design Programme, £74,080

LENA Space, a small company based near Salisbury, is developing a rocket engine for launch vehicles. Called the Modular Propulsion Engine (MPE), the overall development plan is for an off-the-shelf, flight qualified propulsion system to support small launch vehicle programmes. The Pathfinder project will involve detailed design work on the MPE, particularly integrating several previously developed LENA subsystems – including pintle injector, electric drive cryogenic pumps and AM manufactured nozzles – into a single engine.

The University of Leeds, Advanced manufacturing techniques for supra-terahertz optical components, £74,969

Important gases in our atmosphere, and the clouds between stars are only visible in the terahertz (far-infrared) part of the spectrum – observing them is key to understanding how planets form, and how our climate is changing. Researchers at the University of Leeds and Rutherford–Appleton Laboratories are developing new ways to manufacture specialised terahertz components. They will develop liquid-crystal technology, similar to that in television screens, to produce smart lenses and shutters, and 3D-printing methods to produce ultra-thin lenses and light-filters. This will underpin the first terahertz sensors suitable for use in satellites or compact lab-based instruments.

Archer Technicoat Ltd (ATL), Nb-alloy Additive Manufacture and Iridium coating (NbAMIC), £72,778

This project aims to develop new spacecraft propulsion technologies that reduce costs and increase current methods' efficiency. The Oxfordshire-based company will minimise material wastage and increase temperature capabilities

by combining 3D-printing, special coating techniques, and an innovative material combination to improve current industry standards in thrust chamber technology. This project is the next step in creating a scalable family of efficiently priced bi- and green-propellant thrusters.

Project is being led by Archer Technicoat Ltd (ATL) with Birmingham University's AMPLab as project partners.

Rocket Engineering, SuperMagdrive, £64,200

By using new materials and cooling systems, SuperMagdrive, which is the size of a can of coffee, will increase magnetic field density, allowing spacecraft to manoeuvre more efficiently in orbit. The compact propulsion system is designed for nano and small satellites and aims to target spacecraft customers interested in space debris mitigation and on-orbit spacecraft servicing.

Magdrive is partnered with Rocket Engineering Limited (providing systems engineering and project management expertise) and is supported by Oxford University's Department of Materials.

Spottitt, Remote Monitoring of UK Waste & Mineral Sites, £50,296

The Oxfordshire-based project will explore the technical and commercial viability of a low cost, fully automated monitoring service for waste and mineral sites using satellite imagery. Current processes rely almost entirely on physical site visits to monitor activity and changes. Satellite monitoring offers a more cost-effective and accurate alternative which can ensure activities are more frequently monitored, thus reducing the risk of long-term environmental damage. The project will first monitor waste and mineral sites in the UK with a look to ultimately roll out the system globally.

The project is being delivered by a small but experienced team from Spottitt Ltd. in collaboration with partners Oxfordshire County Council.

£150 million government investment to save the world's rainforests

- New government funding to protect tropical rainforests, regions and communities across Africa, Asia and Latin America
- funding will help protect 2.1 million hectares of rainforests, an area the size of Wales, from deforestation
- programme will have the potential to create thousands of green jobs throughout rainforest regions and generate almost £1 billion of green private sector investment to tackle climate change around the world

A new multi-million pound fund launched today will help protect rainforests equivalent to an area the size of Wales, cut millions of tonnes of carbon emissions and improve the lives of over 600,000 people in tropical forest communities across Africa, Asia and Latin America.

Through the newly launched Mobilising Finance for Forests Programme, the government will invest £150 million for businesses and investors who support and deliver sustainable land-use projects and protect rainforest regions like the Amazon and Indonesian basins in communities vulnerable to climate change.

This is also expected to attract as much as £850 million private investment, support thousands of green jobs across multiple sectors, such as agriculture, food, and technology in these regions, and is predicted to provide 23% of the reduction in carbon emissions and climate impacts needed over the next decade to meet the goals set in the Paris Agreement.

The projects that could benefit include those that promote transparent supply chains and implement deforestation-free standards, supporting an estimated 600,000 small-scale farmers and food producers to incorporate forest protection into agricultural production.

This funding will help to remove 28 million tonnes of CO₂ from the atmosphere, equivalent to the offsetting London's entire CO₂ emissions annually over the next 15 years, through investing in eco-friendly projects like harvesting nuts, seeds, and coffee sustainably, restoring lost forests, diversifying crops to prevent soil erosion, and launching conservation activities – restoring tropical forests as our most effective and natural carbon capture and storage sinks.

Today's funding forms part of the UK's existing commitment of £11.6 billion for international climate finance, which includes the Prime Minister's [recent pledge](#) to spend at least £3 billion to protect nature and precious biodiversity over the next 5 years, of which projects to maintain forests will be a major part.

Energy Minister Anne-Marie Trevelyan said:

The impact of deforestation is devastating – on those vulnerable rainforest communities, and on global efforts to combat climate change. And the health of the earth's tropical forests is critical to the health of our planet – we need to do all we can to protect and preserve this vital ecosystem.

Today's new fund will ramp up investment in projects on the frontline of this effort, while also giving financial institutions the confidence they need to invest, which could attract and secure as much as £850 million from the private sector.

International Environment Minister Lord Goldsmith said:

Deforestation is not only a major contributor to climate change, it is responsible for catastrophic biodiversity loss and it undermines the livelihoods of many hundreds of millions of people who depend on forests. So the UK is absolutely committed to tackling global deforestation.

In addition to expanding our own woodlands, we are working internationally to tackle the main drivers of deforestation and protect our vital forests. This funding is a demonstration of our leadership in the run-up to the crucial G7 and COP26 summits. We are clear that there is no pathway to tackling climate change that does not involve the recovery of nature.

More than a quarter of the world's population rely on forest resources for their livelihoods, including providing more than 13 million green jobs. Rainforests are also habitats for a vast array of plants and animals and safeguard the planet's resilience to climate change, including storing carbon dioxide in tree trunks, roots and soil. Through unsustainable approaches like deforestation, the world has lost one-third of its forests since the last ice age – an area twice the size of the United States, releasing a predicted one fifth of the world's greenhouse gas emissions.

By 2030, the global transition to sustainable food and land use will be worth £1.8 trillion annually. This will help 1.5 billion people come out of poverty and feed an additional 2.2 billion by 2050, while protecting valuable natural resources being cleared to make way for grazing animals and to grow crops.

COP26 President Alok Sharma said:

The world's forests provide over 1.5 billion people with food and livelihoods and are a vital resource that is disappearing at an alarming rate, and we must do more to protect them.

Nature and biodiversity is a key campaign of COP26 and action to tackle its loss will be crucial in the fight to address the impact of climate change whilst also supporting sustainable livelihoods. I am pleased the funding announced today will help secure the future for millions of hectares of forest across the globe.

The programme is being delivered in partnership with the Netherlands' Development Finance Institution, which will aim to co-invest up to £36 million of its own capital in project.

Executive Director of Tropical Forest Alliance Justin Adam said:

I welcome the United Kingdom's announcement of a new £150 million facility to Mobilise Finance for Forests. Our forests are critical in the fight to slow climate change and address biodiversity collapse. Yet deforestation, predominantly from the expansion of

agriculture, is causing the loss of 3.8 million hectares per year of pristine rainforest.

This is an area of tropical rainforest the size of Switzerland that the world is losing. Meeting food security and environmental goals is going to require innovative finance approaches that blend public and private monies. I am excited to see how this new facility can accelerate efforts to stop deforestation.

Chief Executive Green Finance Institute Dr Rhian-Mari Thomas OBE said:

Nature and climate are increasingly being recognised as 2 sides of the same coin – we can't solve for one without solving for the other. We welcome the MFF programme, which can play an important catalytic role, helping to crowd-in private capital towards sustainable forest use.

This kind of program, particularly the inclusion of credit guarantee structures, can be a highly efficient way to de-risk sustainable land use investments, making them attractive to investors whose return appetite would otherwise not be met. This is an important step in scaling up green investment in nature-based solutions to help tackle climate change and deforestation.

The government's International Climate Finance (ICF) programme plays a key role in supporting the growth of innovative sustainable farming and forestry businesses globally. In 2019, UK ICF programme helped reduce deforestation levels in Colombia by 19% – a great step towards reducing emissions and protecting the people in forests in one of the most bio-diverse countries in the world.

In February 2021, the UK COP26 Presidency also launched the [Forest, Agriculture and Commodity Trade \(FACT\) Dialogue](#), which will bring together key countries exporting agricultural products and the countries consuming these products to discuss how to make this process greener and more sustainable. The dialogue will run up to COP26 and beyond.

Through the government's ICF programme and COP26 presidency, the UK will continue to play a crucial role in addressing the global challenge of climate change internationally in the run up to the COP26 UN Climate Summit in November. Britain is among the largest contributors of public climate finance and the government is committed to providing support which is transparent, transformative and in line with the needs and priorities of developing countries.

Read more details about the [International Climate Finance](#).

The Mobilising Finance for Forests programme will use a blended finance investment approach to combat deforestation and other environmentally unsustainable land use practices that are contributing to global climate

change. The UK will initially allocate up to £150 million across 5 to 6 investment funds operating in selected tropical forest regions in Africa, Asia and Latin America. The programme's investments will, over time, contribute to a reduction in deforestation rates by stimulating the growth of private sector investment in markets that create value from standing forests or incorporate forest protection into agricultural production.

MFF will be delivered by the Netherlands' Development Finance Institution (FMO). FMO has a strong track record of investing in a range of forestry and sustainable land use (SLU) sectors in MFF's targeted geographies. FMO will endeavour to invest £36 million of its own capital alongside the UK, increasing MFF's mobilisation impact and demonstrating progress for the UK's COP26 objective to increase International Finance Institutions' support for nature-based solutions.

FMO will also work closely with the Commonwealth Development Corporation (CDC), the UK's own Development Finance Institution, to increase the flow of much needed private capital into forestry and sustainable land use projects that combat climate change. CDC has invested over £800 million into climate related investments under its current mandate in Africa and South Asia since 2017, primarily in clean energy, but with ambitions to grow the size of its investment portfolio in forestry.

All UK investments are closely scrutinised and adhere to a high standard of Official Development Assistance (ODA) rules to ensure they deliver value for money.

The UK government's International Climate Finance (ICF) has committed over £1.1 billion since 2011 to help developing countries slow and eventually stop deforestation and protect precious biodiversity. This includes:

- £141.5 million for Forest Carbon Partnership Facility Fund (FCPF) which supports the development and implementation of low deforestation rural development plans in developing countries to protect forest and biodiversity
- £73 million for the REDD+ Early Movers programme (REM), which supports governments and local indigenous communities in Brazilian and Colombian Amazon to grow sustainable rural economies and halt forest loss
- the £64 million Territorios Forestales Sostenibles (TEFOS) programme, which will create local jobs in areas of Colombia, improving livelihoods of communities who rely on forests
- the £35 million Partnership For Forests (P4F) programme which supports building innovative business solutions to tackle deforestation and protecting precious biodiversity in Latin America whilst recovering in a greener and resilient way

Climate change will hit the hardest communities and groups who are already the most disadvantaged. ICF programmes such as Partnership for Forests provided training and support to women in Brazil to take on a bigger role in male-dominated activities such as cocoa agroforestry activities.

CMA launches study of children's social care provision

- the study will examine the lack of availability and increasing costs in children's social care provision, including children's homes and fostering
- using its powers, the CMA is in a unique position to lift the lid on this complex sector and find solutions to problems it uncovers
- "Children's care is not a market like any other – our clear and overriding priority will be about identifying ways children can get better care." CEO Andrea Coscelli

The Competition and Markets Authority (CMA) will examine concerns around high prices paid by local authorities and inadequate supply of appropriate placements for children in their care. This could be putting pressure on the ability of local authorities to provide the appropriate accommodation and care which children need.

Using its statutory market study powers, the CMA aims to obtain information to help build a better understanding of the children's social care sector. Depending on what it finds, it can issue guidance to businesses and the public, make recommendations to the industry or to government or, if appropriate, launch a full investigation into the market.

Andrea Coscelli, Chief Executive of the CMA, said:

Children in care are among the most vulnerable in our society and they need a system that does not let them down.

We are concerned that some children are not getting access to the right placements due to a lack of availability in the system, and that rising prices are putting further pressure on stretched local authority budgets.

The CMA is in a unique position to use its powers to look into this. But children's care is not a market like any other – our clear and overriding priority will be about identifying ways

children can get better care. This will include examining the concerns raised about the role of private sector providers, which has grown in the last few years, as well as the role of public and third sector providers.

In England, Scotland and Wales, around 99,000 children live under the care of their local authority. The majority of children in care, approximately 65,000, live in foster care. Around 16,000 children live in residential care, including children's homes and independent or semi-independent living accommodation, with the remaining 18,000 in a range of other types of placement, including with their parents or placed for adoption.

Each local authority is responsible for contracting foster care and purchasing the required children's homes places. Children are placed with foster carers, either directly by the local authority or by independent fostering agencies, which can be run for-profit in England and Wales but not in Scotland. Children's homes are provided either directly by local authorities, by the private sector or by charities, with 70% of children in England and 78% of children in Wales placed in private sector homes.

The launch of the study comes after concerns have been raised by other organisations about private sector provision of children's social care making high profit margins. A recent Local Government Association report found that some independent providers of children's residential and fostering placements are achieving profits of more than 20% on their income. The study will examine whether high levels of profit have been made at the expense of investment in recruiting and retaining staff, and providing quality services.

The CMA will look at how well the current system of provision is working across England, Scotland and Wales and explore how it could be made to work better. In particular, it will look into:

- the supply of placements, including whether the current balance of local authority, private sector and third sector provision is working well for children and local authorities
- prices charged by providers and variation between prices paid for similar types of placement, with increasing prices potentially putting pressure on local authority budgets
- the way commissioning of places is carried out, and whether local authorities could be more effective in securing appropriate placements for children
- the environment for investing in the system to ensure sufficient appropriate places are available for all children who need them in the future, and whether any measures should be taken to improve this

In recent years, the CMA has carried out similar studies into funerals and care homes for older people, among others.

Comments on the issues raised can be submitted in the [Invitation to Comment](#) by 14 April 2021. All updates on the CMA's work in this area can be found on the [Children's social care study page](#).

1. Market studies, like this one, may lead to a range of outcomes, including: (a) clean bill of health (b) actions which improve the quality and accessibility of information to consumers (c) taking consumer or competition law enforcement action (d) making recommendations to the government to change regulations or public policy (e) encouraging businesses in the market to self-regulate (f) making a reference for a more in-depth (phase 2) market investigation, or (g) accepting formal undertakings in lieu of a reference
2. Costs charged to local councils for independent provision of children's homes has increased by 40% from £2841 per week on average in 2013 to £3970 per week on average in 2019, according to data from the National Centre for Excellence in Residential Childcare.
3. Recent reports by the NAO, HCLG Select Committee and Children's Commissioner have been critical of public policy on children's social care.
4. The largest proportion of children's homes places in England and Wales are provided by the for-profit sector – around 70% in England and 78% in Wales in February 2020. In England, there has been a 19% increase in for-profit provision since 2016 ([based on 2019 data](#)). In England and Wales, independent fostering agencies (IFAs) provide 18% of placements, but in Scotland it is prohibited to run a fostering agency on a for-profit basis.
5. A report published in January 2021 by the Local Government Association and Revolution Consulting, [Profit making and Risk in Independent Children's Social Care Placement Providers](#), found that some large private providers were achieving profits of 20.6% on their income.
6. The children's social care system is the subject of significant policy attention across the UK, including through the independent review of children's social care in England, the implementation of the Promise review recommendations in Scotland and the Improving Outcomes for Children programme in Wales. The CMA's study will take into account the policy context of each nation.

[New tree fund for local communities announced](#)

A brand-new funding initiative to increase tree planting and natural regeneration in local communities has been announced by the government today (Friday 12 March), with £2.7 million available this year, building the pipeline of projects for community planting in future years.

The [Local Authority Treescapes fund](#) is aimed at establishing more trees in riverbanks, hedgerows, parklands, urban areas, beside roads and footpaths, in copses and shelterbelts, including neglected, disused and vacant community spaces. Trees in these settings are particularly valuable as they can provide the greatest levels of benefit to ecosystems and society, such as carbon absorption, flood protection and support for biodiversity, as well as connecting fragmented habitats.

The fund will help the nation build back greener from the pandemic and will target landscapes that have been neglected in the past, ecologically damaged or affected by tree diseases like ash dieback – with ash being the most common species of tree found in non-woodland locations. Grants are available for local authorities, working together with community groups, volunteers, NGOs. Successful applicants will be informed by the end of July.

Forestry Minister Lord Goldsmith said:

I am delighted to announce this new fund, which will get trees planted and land regenerated for the benefit of local communities and nature. This is an opportunity for communities to work with their local authorities to identify land, design projects and apply for funds. Trees and land restoration are central to our plans for nature recovery and to get to net zero emissions, and we know how much value people place on trees and green spaces in their local communities.

Forestry Commission Chair Sir William Worsley said:

The Local Authority Treescapes Fund can play an important role in creating resilient new tree growth in our communities, particularly in areas which have lost trees to historical neglect and disease.

This year, £2.7 million will be available from the government's Nature For Climate Fund.

Applications will be open to all local authorities, via top tier authority

applications. Local authorities are encouraged to work with other organisations, NGOs, community groups and private individuals to deliver the most exciting projects. Bids will be accepted from early April 2021.

The Nature For Climate fund will help us deliver the English portion of the government's manifesto commitment to increase tree planting to 30,000 hectares per year across the UK by 2025, alongside peatland restoration and nature recovery.

Today's announcement will support the government's tree planting ambitions and support the goals set out in the [2018 Tree Health Resilience Strategy](#).

Trees are at the heart of our ambitious environmental programme. The Prime Minister reiterated our commitment to plant or naturally regenerate 30,000 hectares per year by 2025, as part of his [10 Point Plan](#), and we will be setting out how we achieve this in the coming months.

[Turing scheme to open up global study and work opportunities](#)

Schools, colleges and universities can now apply for funding from today (Friday 12 March) to allow students to study and work across the globe as part of the new Turing Scheme.

The programme, backed by £110 million, replaces the Erasmus+ scheme in the UK and will fund 35,000 global exchanges from September 2021, including university study, school exchanges, and industry work placements.

The new scheme aims to improve social mobility, targeting students from disadvantaged backgrounds and areas which did not previously have many students benefiting from Erasmus+, making life-changing opportunities accessible to everyone across the country. The British Council and Ecorys will be targeting disadvantaged parts of the country to promote the scheme to improve take up.

The Turing scheme [offers benefits](#) to students that they would not have under the previous Erasmus+ programme, with university students from disadvantaged backgrounds set to receive a maximum of £490 per month towards living costs (currently worth around 573 euros compared to 540 euros under Erasmus+), alongside travel funding, and other forms of additional funding to offset the cost of passports, visas and insurance.

Unlike Erasmus+, which is EU-focused, the Turing Scheme is a truly global programme and every country in the world is eligible to partner with UK universities, schools and colleges.

Prime Minister, Boris Johnson said:

The Turing Scheme is a truly global programme with every country in the world eligible to partner with UK universities, schools and colleges.

It is also levelling up in action, as the scheme seeks to help students of all income groups from across the country experience fantastic education opportunities in any country they choose.

Education Secretary Gavin Williamson said:

This is a landmark step in delivering on our promise to level up a truly global Britain, strengthening our ties across the world and providing students with the skills they need to thrive.

The programme's focus on social mobility and value for money will open up more opportunities for international education and travel to all of our students, especially for those from disadvantaged backgrounds who were less likely to benefit from the previous EU scheme.

I urge all universities, schools and colleges from all corners of the UK to start their applications and partner up with countries worldwide.

Universities Minister, Michelle Donelan said:

The Turing scheme will support our levelling up agenda by opening up the world to young people and children from all backgrounds with exciting global opportunities.

The scheme will enable up to 35,000 students throughout the UK to work or study across the globe.

As part of the UK-wide launch, education ministers are visiting the devolved nations today to highlight the advantages of the Turing scheme and ensure wider participation for all students across the UK.

In support of the launch, Universities Minister Michelle Donelan will visit Cardiff University and Edinburgh University to discuss the bidding process including how to demonstrate widening access to more disadvantaged students as part of the application process.

School Standards Minister Nick Gibb and Apprenticeships Minister Gillian Keegan will visit educational settings in areas that have not previously benefitted from Erasmus+. Applicants from schools and colleges are encouraged, with funding levels and eligibility set out in programme guides

available to help inform applications.

UK organisations are encouraged to form partnerships across the globe, not just the EU. The Turing website includes the programme guide, funding levels and eligibility, and details of webinars available to help inform applications.

Successful applications will receive funding for administering the scheme and students taking part will receive grants to help them with the costs of their international experience. The benefits of the exchanges will be assessed and the findings used to build on future schemes. Funding decisions for subsequent years will be subject to future spending reviews.

£110m of funding will be available to support projects and activities during the 2021/2022 academic year. This is enough to fund similar levels of student exchanges under the former Erasmus+ scheme.

Programme guidance, including information on the application process, has also been published on the [Turing Scheme website](#).