



CLIMATE TAKE BACK CASE STUDY

BIOCARBON ENGINEERING

Scaling up reforestation by using drones to plant a billion trees every year

WHAT IS IT?

BioCarbon Engineering is a small UK business working with drone technology to transform the ways in which tree seeds are planted. It has managed, through the use of drone technology, to dispense seed pods from the air across large areas.

HOW DID IT DEVELOP?

BioCarbon Engineering was established in 2014 by Lauren Fletcher, an ex-NASA employee of twenty years, who wanted to use his technical expertise and heritage to create a business that could change the natural environment for the better.

Having observed the rate at which forests were being destroyed, Lauren wanted to find a way to match that rate, even exceed it, with the replanting of new trees to not only mitigate deforestation rates, but also start to restore the world's forests.

HOW DOES IT WORK?

Drone technology is adapted to survey environments and then disperse seeds at high speed across massive areas.

Once an area is identified, survey drones gain detailed terrain data and generate high quality 3D maps of the area to be reforested. This data enables an outline landscape to be designed and agreement on planting patterns.

The topography of the soil is mapped and the BioCarbon Engineering team

works with ecologists to determine the right species to plant.

Biodegradable seed pods containing germinated seeds are then carried by the drones and released using precision agriculture techniques to increase uptake rates.

HOW EFFECTIVE IS IT?

It's 10 times more effective than traditional hand-planting. Just one drone can carry 150 seed pods, firing them at a rate of one every second. This enables it to reforest one hectare every 20 minutes but by adding more drones, the speed and scale of seed planting increases exponentially.

The average human being can plant around 1,500 seeds per day whereas a pair of BioCarbon's drones can manage nearly 100,000 in the same period.

WHAT ARE THE END PRODUCTS?

A billion new trees every year – but it's more than just that. The technology can also be used to sow grasses and shrubs, and in the future BioCarbon Engineering plan to seed in other species, including micro-organisms and fungi to improve the soil quality and enhance long term ecosystem sustainability.

The drones also create usable, highly accurate data that allows efficient measurement of impact and management of the newly enhanced ecosystems.

WHO BENEFITS?

Firstly, the natural world. The faster we create new forests, the faster we can sequester more carbon, create viable habitats for wildlife and create valuable storage systems for water.

Restoring degraded forests will also help to feed around 200 million people by adding organic matter back into the soil and creating nutrient-rich ecosystems in which to grow food.

But it is easy to see how this technology could be applied to supporting a truly sustainable forestry industry by creating forests at a rate that mean we can harvest trees sustainably, and replant at a rate that ensures true carbon neutrality, even positivity.

HOW CREDIBLE IS THIS?

Whilst in its infancy, the potential of drone technology is rapidly being realized around the world with drone use being specified for a range of tasks from delivering people's daily shopping to vital medicine drops.

The BioCarbon Engineering team are working with credible sources to identify key areas around the globe where forest landscape restoration could take place,

and then to understand the right species to plant in a given typography.

WHY WE LOVE THIS

BioCarbon Engineering is an example of exciting new technology being harnessed for environmental, social and economic good.

When we look at the scale of mechanization being deployed to destroy forests at high speed, it can be difficult to believe that we could recreate them at the same rate. But now it is starting to look like a real possibility. It isn't just about speed, however. Drones can reach areas that were previously inaccessible.

It means creating a whole lot more nature to get on with cooling faster than we ever imagined would be possible.

 [BIOCARBONENGINEERING.COM](https://biocarbonengineering.com)

CLIMATE TAKE BACK

At Interface, we're convinced a fundamental change needs to happen in our global response to climate change. We need to stop thinking about how to merely limit the damage caused by climate change – and start thinking about how to create a climate fit for life.

Our new mission is called Climate Take Back – and we invite you to join us.

Find out more at our website [here](#)

Interface®

LIVE ZERO

Aim for zero negative impact on the environment

LEAD THE INDUSTRIAL RE-REVOLUTION

Transform industry into a force for the future we want

LOVE CARBON

Stop seeing carbon as the enemy, and start using it as a resource

LET NATURE COOL

Support our biosphere's ability to regulate the climate

