



Mattias Gustafsson
Project Director

Who is involved?

Mattias Gustafsson (Project Director)
Lotta Ek (Vice Project Director)
Björn Embrén (Project group)
Jonas Dahllöf (Project group)
Kåre Gustafsson (Project group)

About our Innovation

The Stockholm Biochar Project - making Stockholm a greener and more energy efficient city

Challenge

Cities are major contributors to climate change: although they cover less than 2% of the earth's surface, cities consume 78% of the world's energy and produce more than 60% of all carbon dioxide.

Stockholm's emissions are among the lowest in Europe, but the city doesn't see these as being low enough.

Idea

The city's plant waste (collected from homes and the parks department) is being used to produce biochar. When added to soil, biochar contributes to improved plant growth whilst removing carbon from the atmosphere. The production process also creates heat which will be fed into district heating systems.

Intended impact

- The project will result in carbon being removed from the atmosphere, equivalent to the yearly carbon dioxide emissions from 3500 cars.
- Creation of enough renewable energy to heat 400 apartments.
- Improvement of urban soils resulting in a greener and more biodiverse city.
- More Stockholm citizens understand climate change and are willing to take action to combat it.

Our journey
implementing our idea

Adaptation and adoption: How to take an existing technological innovation and integrating it into Stockholm's public service system

The technology that turns plant waste into biochar has never been used within the context of a whole city system. Our ambition is to adapt this technology to meet the requirements of a number of different systems in Stockholm (including waste management, soil and water treatment and energy production).

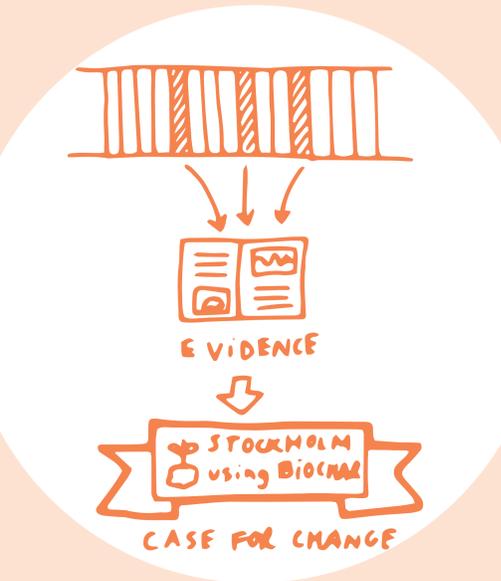
Creating space for individuals to explore their passions

Building networks and relationships leads to new opportunities

Using evidence to create a compelling case for change

Giving leaders 'skin in the game'

"We have been applying a radical new technology in a new context... not easy!" *Mattias Gustafsson*



Next steps

Grow demand for biochar

In order to achieve our ambition we need to grow public demand for the use of biochar. Starting with a public-facing launch event, we will deliver a communications campaign that engages key stakeholders including allotment and gardening groups.

Focus on learning from initial implementation/investment

We will use our investment in one biochar plant to gain valuable insight about how to treat the park and garden waste, how to operate and maintain the biochar plant, how to integrate it with existing systems and processes and to evaluate the profitability of the system.

What we have done

Björn Embrén is a tree officer who has been the driving force behind the use of biochar in Stockholm's soils. By connecting with soil scientists, energy experts and others, Björn started to understand the potential of biochar. This led him to test biochar in the soil mixes he created for the city's soils.

Björn actively sought out like-minded people in other departments who would be equally enthused by the potential of biochar. The connections he made allowed him to identify opportunities to grow the scope of the project (from soil and water, to waste management and energy production).

Björn has used biochar with his trees for a number of years, recording its impact on their rate of growth. The team has combined this with scientific data on the contribution that biochar can make to the levels of carbon dioxide in the atmosphere, and data on the amount of heat energy generated through its production, to make a powerful case for change.

After the change of administration in 2015, we recognised that we needed to get the new mayor involved in the project. The profile of the Bloomberg award helped, but didn't generate the kind of enthusiasm we needed. We decided that more active engagement would allow us to speed up decision making.

Key activity

Providing Björn with the permission he needed to test biochar in practice on Stockholm's trees.

Forming a network (which includes senior departmental decision makers) that meets regularly to discuss the project, spot further opportunities for integration and problem solve.

Presenting this case for change to local decision makers, using before and after visual images of tree growth to animate the story.

Finding a concrete way for the new mayor to be involved in the work, i.e. a launch event her office would be responsible for curating and to which she would contribute.

Key learning

Don't underestimate the power of a passionate individual to grow a transformative idea or project.

Invest time to build networks across organisational or system boundaries in order to maximise potential impact.

Combine local evidence of impact with scientific data to make a compelling case for change.

Invest time and energy converting senior leaders from passive to active sponsors of the work.