

Urban Doers Community

Barkaby Science

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Imprint

Driving Urban Transitions Partnership

Website: <https://dutpartnership.eu/>

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Design and Layout

Front page: HAUS

Text: Tina Cihal

Photo credit

Front page: In order of appearance: Johannes Riegler, purchased image from iStock, Mariborska kolesarska mreža, Barkarby Science AB, Jan Khur, Julie Hrnčirova, Supergrätzl Lichtental

November 2024

Barkarby Science

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Abstract

Barkarby Science AB is dedicated to contributing to urban transformation in Järfälla municipality, outside Stockholm in Sweden, by integrating sustainable practices into the fabric of the city. Our initiatives focus on enhancing green spaces, promoting biodiversity, and engaging the community in creating a resilient urban environment. Projects like rooftop plantations and climate adaptation not only improve air quality but also foster urban cooling and recreational opportunities.

We emphasise community participation, involving local residents and businesses in decision-making through workshops and educational programs. This collaborative approach fosters a sense of ownership and encourages sustainable practices among the community.

Moreover, our partnerships with academic institutions and industry leaders enable us to leverage knowledge and resources, driving innovative solutions for sustainable urban development. Our work serves as an inspiration for urban transformation, demonstrating the power of green spaces, community engagement, and collaboration in building vibrant and sustainable cities.

Key Lessons

1. Integrating Green Spaces: Urban environments must incorporate green spaces to combat pollution, mitigate heat islands and provide recreational areas.
2. Community Engagement: Effective urban transformation relies on the active involvement of local residents, schools and businesses.
3. Collaborative Innovation: Cross-sectoral partnerships are vital for sustainable urban development.
4. Biodiversity Enhancement: Urban projects should include initiatives to promote biodiversity and ecological health.
5. Sustainable Development: Embracing circular economy principles is crucial for creating resource-efficient urban systems.

Background

When people think of Sweden, they often picture ABBA's catchy tunes, the reliability of a Volvo, and their favourite playlists on Spotify. But there's more to Sweden than just pop hits, safe cars, and music streaming; it's a country leading the way in sustainable living and innovative urban design.

Sweden with 10 million inhabitants, lying in the heart of Northern Europe, is a land of stunning natural beauty with amazing nature and with famous innovations. With its vast forests, many lakes, and picturesque archipelagos, the country offers a unique blend of tranquillity and modernity. It is renowned not only for its breathtaking landscapes but also for its high standard of living and progressive societal values.

Sweden's commitment to sustainability is evident in its global leadership in environmental protection and renewable energy. The nation's cities are often mentioned as exemplars of sustainable urban planning, seamlessly integrating modern infrastructure with nature conservation. In fact, initiatives like Viable Cities, which originated in Sweden, are now being replicated across Europe, showcasing Sweden's pioneering role in sustainable urban development.

The Swedish approach to urban development prioritises ecological balance, social equity, and innovation. This progressive mindset has paved the way for projects like the development of Barkarbystaden. What was formerly a military airbase, is now being transformed into a whole new city district. The Barkarby airport was one of Sweden's oldest military airports, established in 1913. It served as an important base for the Swedish Air Force for many years before closing in 2010. But today it is a whole different story. Picture a community where modern living coexists right next door to nature, and you will begin to understand the vision behind Barkarbystaden. It is neighbouring the wonderful "Järvafältet" which is one of Stockholm's largest nature preserve, about 20 square kilometres, where you can hike, swim in lakes, climb hills, pick blueberries and mushrooms, all while enjoying the wildlife including deer, hares, foxes, and numerous bird species.



Figure 1: View of Barkarbystaden. Source: Barkarby Science

The development of Barkarbystaden is part of the ambitious “Stockholm Agreement” that was signed in 2013. It is a strategic initiative aimed at expanding the region’s urban infrastructure. This agreement has breathed new life into the area, on the old landing strip, which is set to become home to 14,000 new residences and about 35,000 new inhabitants. Central to this transformation is the extension of the Stockholm metro “Tunnelbanan”, a project that has not seen such significant expansion in decades. Soon, the metro will reach Barkarbystaden with two new stations in the municipality of Järfälla. This will make Barkarbystaden one of the most accessible and desirable places to live and work and all of 1,4 million people will be able to reach the city in 30 minutes!

Barkarby Science – the Swedish Urban Doer

So, how does all this lead us to Barkarby Science and the Urban Doers programme that we so proudly are part of? Well, in the year 2017 the company Barkarby Science was initiated by the, at that time, chair of the municipal executive board, Claes Thunblad. That led to the founding in 2018 of Barkarby Science. The municipality wanted to make sure that the new city would be developed in a sustainable way and that they would be innovative and try out new solutions. They initiated the company together with huge actors from the private sector and it is now co-owned by 7 organisations in total.

The mission stated is that Barkarby Science will work with innovation and sustainable city-development to help Barkarbystaden in its aim to be climate neutral by the year 2030 and work towards the goals in the Agenda 2030. This is to be accomplished by initiating projects that aim to lessen the emissions of carbon dioxide, to help bind carbon dioxide, projects that makes it be a more circular economy city, the mobility of the future, various climate smart solutions and all while as well being an attractive city for people to live in.

Barkarby Science sees it as important to involve schools, businesses, inhabitants and students in the different projects. By involving them they contribute to and learn from our initiatives making the projects community efforts as well while cultivating a culture of sustainability and environmental guardianship. Community engagement is at the heart of Barkarby Science’s approach.

Our projects

Now, would you like to know more about what we do?

Green Spaces: We have established rooftop plantations to measure its effect on the enhancement of air quality and urban cooling, also to measure the pollinators that are attracted to the plants. One of these green spaces initiatives is co-created with the community, involving pupils from local schools and companies in the design and implementation processes through workshops and collaborative projects. This approach not only enriches the educational experience for students and fosters environmental stewardship but also ensures that our green initiatives meet the needs and aspirations of the wider community. It is so rewarding working with children since they are so curious and eager to explore and learn.



Figure 2: Children from a nearby school plant their seedlings.
Source: Barkaby Science

The first time we met the children, at their school, we told them about pollinators and the importance of plants and flowers and we asked if they would help us plant seeds that would become flowers, and then 6 months later to plant them in a roof-top garden. They were very excited and wanted to start right away. Now, given the Swedish climate, you cannot plant seeds in the fall. So as excited as they were, they had to wait until spring. Spring came, seeds were planted and in the beginning of May, it was finally time for them to plant the flowers.



Figure 3: Building the accommodation for insects. Source: Barkaby Science

On the day of planting the flowers, they additionally got to build two insects hotels by drilling holes of different sizes into a tree log. So now, on a roof-top in Järfälla there is an amazing bed of flowers and insect hotels that can be visited and admired and the children were so proud when they could see their hard work - after nurturing the seeds and seedlings for months, it now paid off.



Figure 4: The beginning of the planting of seedlings. Afterwards there were plants everywhere. Source: Barkaby Science

Biodiversity Initiatives: Our projects focus on enhancing biodiversity by creating habitats that support pollinators and beneficial insects. Through the integration of plants in urban green spaces and gardens, we provide essential resources such as nectar, pollen, and nesting sites. These efforts help sustain healthy insect populations, contributing to ecological balance and the overall health of urban ecosystems. We have planted 40.000 willow trees that bloom early, thereby supplying the pollinators with food early in the season when it is scarce. As part of this, we did several workshops with private companies and schools asking about carbon offsetting. Carbon offsetting is a method used to compensate for emissions of carbon dioxide (CO₂) or other greenhouse gases by investing in projects that reduce or absorb an equivalent amount of emissions elsewhere. This can include a variety of initiatives, such as reforestation projects, renewable energy installations (like wind or solar power), and energy efficiency improvements. We were curious to find out what opinion the local society had on this. And could it be of interest to do something about those 40.000 trees we planted and maybe in a larger scale. We found out that in Järfälla there is unfortunately no more room for more trees since there are several nature reserves and the rest of the municipality is rather densely populated. However, it could be done in the vicinity of the municipality. There are some carbon offsetting initiatives but for the most part, they are very far away from Sweden.

In our workshop, the participants emphasised the wish for a possibility of carbon offsetting closer to home.

We also attached a geo cache to the plantation and a big sign informing the public about what was happening. The geo cache was a fun and creative addition, which made people from all over come to visit. A lot of fun and many people registered themselves having visited the geocache.



Figure 5: Bottom left, the 50 cm tree that was planted initially. In the middle showing a geocache that was a part of the project and top right a few months into the project. Source: Barkaby Science

The trees we planted are extremely fast growing. When we planted them, they were 50 cm tall and after only a few months some of them had reached three metres. The trees can help clean the water, soil and air from pollution and when you cut them down you can for example make biochar.

The longer you leave the trees in the ground the better, since time is your friend when it comes to phytoremediation. Phytoremediation is an environmentally friendly and cost-efficient method of using plants to clean water, soil and air from hazardous contaminants. Which tree or plant you should use depends on the contaminants present in the area you wish to clean. This technique harnesses the natural accruing abilities of certain plants to absorb, accumulate and detoxify pollutants from the environment.

Community Engagement

Active participation from local residents, schools and businesses is integral to our approach. Through workshops, interviews and incorporating for example master students in our projects, we empower the community to adopt sustainable practices. This engagement fosters a two-way exchange of knowledge, where we learn from local insights and experiences while the community gains awareness and skills about our projects. This mutual learning enhances our projects by incorporating local wisdom and ensures our initiatives are well suited to the community's needs and context. We also do initiatives such as being part of festivals, events, exhibitions or interview the citizens out and about in our society. For example, we collaborate with a library where we can spend a day randomly interviewing its visitors without imposing too much. We find that a lot of the time the inhabitants see it as something positive when we interview them. They wish to share their experiences and opinions.



Figure 6: On the left showing how tall the trees grew in just a few months. Pictured in the middle is a workshop and a presentation of the project. On the right a picture from an exhibition where we met the citizens and told them about the plants. Source: Barkaby Science

How we contribute to tackling urban challenges

Our initiatives contribute to tackling several urban challenges. For example, green spaces help reduce air pollution and urban heat effects. By involving the community, we address the challenge of public disengagement in urban development. And finally yet importantly our biodiversity projects counteract habitat loss in urban areas, promoting ecological resilience.

We aim to transform Barkarbystaden/Järfälla municipality into a model of sustainable urban living by expanding green infrastructure to cover more urban areas. We also plan for an increasing community participation, which leads to environmental guardianship. We continuously work on enhancing partnerships with academic and industry leaders to drive innovation in urban sustainability.

We hope our success in creating and maintaining green spaces in an urban setting can guide other cities in their greening efforts. Through our participatory approach, we hope that serves as an inspiration for involving communities in urban development processes. Our partnerships demonstrate the effectiveness of multi-stakeholder collaboration in achieving sustainable outcomes.



Figure 7: One of the many workshops that we facilitate to listen and learn. Source: Barkarby Science

Enhancing our impact in the future

Expand projects within Circular Economy: Focus on sustainable materials and waste reduction to create more efficient urban solutions.

Deepen Engagement in Social Equity: Develop strategies to ensure that all community segments benefit from our initiatives.

We advocate for the following practices:

Green Infrastructure: Urban areas should prioritise integrating green spaces to improve air quality, heat islands, public health and support biodiversity.

Community-Led Development: Engaging local stakeholders is imperative for sustainable urban transformation.

Collaborative Frameworks: Partnerships across sectors are essential for innovative and effective urban solutions.

Our Future Vision

We envision Barkarbystaden evolving into a leading example of sustainable urban living, characterised by its vibrant green spaces, active community participation, and resilience to environmental challenges. Our long-term goal is to inspire other cities towards sustainable urban development.

So next time you think of Sweden, let your mind wander beyond ABBA's catchy tunes, the reliability of a Volvo, and your favourite Spotify playlists. Picture instead the lush green rooftops and buzzing biodiversity of Barkarbystaden, a testament to what can happen when a community dreams big and acts even bigger. Ready to see how your city can transform? What role will you play in shaping a greener, more sustainable future?