The Natural Nexus
How Nature-Based Solutions Can Help Restore the Planet and Civil Society

In this Transition Read, we explore ways that nature-based solutions can have transformative social impact in cities, and how these solutions are being used by transition initiatives to strengthen and accelerate their work towards creating sustainable, low-carbon societies. Transition Reads are published as part of the ARTS project, an EU-funded research project which aims to benefit theory, policy and practice related to accelerating sustainability transitions.

Take a look out of your window. If you’re lucky, you’ll see at least one tree. Do you ever think about what the tree does? It lets your eyes rest. It helps lower your blood pressure. It helps you breathe easier. It cools you and protects you from the effects of the changing climate, often cheaper and more effectively than most technical solutions will. It’s also a home and resting place for hundreds of organisms, plants and animals and engineer of the “wood wide web”, nature’s predecessor of internet. And that’s just a few things from a long list.

How much do you know about your tree? How old is it? Who decided to plant it there? Who takes care of it? Does your local government or is it the company that manages the nearby office block? Or maybe a group of neighbours who wanted to make their street greener? Do you feel responsible for it? Would you miss it if it one day simply disappeared?

The tree outside your window is a very simple example of a nature-based solution. Nature-based solutions are “living solutions” that shape, use or mimic nature and the natural functions of healthy ecosystems to solve some of the planet’s most pressing environmental problems. Nature in the city – be it trees or parks, rivers or creeks, natural or constructed urban wetlands, green roofs, beehives or grass-eating sheep - offers important benefits that are not only environmental, but also social and economic. Nature-based solutions in cities grow best from the bottom up, just like in nature. That means that management-wise they require a fertile breeding soil and constant inputs of energy and attention. And who better to do this than the local citizens? The ARTS project has some examples to prove it.

For the last three years, the ARTS project has been investigating local transition initiatives and working with them to accelerate the change necessary to be a sustainable, low-carbon society. During the project, researchers realized that transition initiatives using nature-based solutions sparked social innovation in cities and accelerated sustainability transitions by creating new social relations and better connecting them. They also helped change the perception of the human-nature relationship in cities. In fact, they go as far to say that nature-based solutions are one of the most critical meeting places for top-down and the bottom-up initiatives to engage, serving as the new “urban commons of sustainability.”
In this Transition Read, we explore ways that nature-based solutions can have transformative social impact in cities, and how these solutions are being used by transition initiatives to strengthen and accelerate their work towards creating sustainable, low-carbon societies. We selected three examples from a large portfolio of transition initiatives studied by the ARTS project to illustrate how collectives of engaged citizens develop and sustain nature-based solutions in socially innovative ways, how these solutions export benefits far beyond their own borders and thus accelerate sustainable change at all levels.

Reconnecting Nature and People

The ARTS research team conceptualized nature-based solutions as “socio-spatial interventions” that have a transformative impact on the relationship between people and nature in their place. There are ways of thinking about how nature exists in cities and how people interact with it. They call the socio-spatial interventions: nature-to-place, nature-to-people, and nature-in-place.

Nature-to-Place

Nature-to-place is the process of bringing nature to the physical landscape to help legitimize and normalize sustainable solutions as ways to solve problems and provide an alternative to conventional “grey” infrastructure. In this context, transition initiatives are fundamental for creating and localizing nature-based solutions, for making them a valuable part of the urban local habitat. They shift the passive experience of engaging with nature to an active experience of “making” nature. This is illustrated by examples of urban community gardening, urban bee keeping and community tree planting initiatives.

Nature-in-Place

Nature-in-place is the concept of systematically restoring and regenerating nature in place to mitigate climate and human-created impacts (i.e., floods, drought, urban heat islands, soil sealing, etc.), it is about promoting urban and natural co-evolution. When used in this way, nature-based solutions can significantly alter conventional planning and governance processes as ways to address climate issues in cities in resource efficient and adaptive ways while promoting multiple value creation. As such, nature-based solutions can be seen as path-creators of more transformative integrated urban planning approaches. One example of this concept is dechannelizing rivers to restore natural riverbanks and floodplains to accommodate run-off naturally, simultaneously creating additional greenspace and habitat, and then making this the standard practice for all state-managed waters.

Five Possible Ways to Accelerate Transition

One of the core objectives of the ARTS project was to identify how sustainability transitions can be accelerated. Or, in other words, how cities can adopt more transformative ways of thinking, doing and organising to reduce negative environmental impacts and promote the wellbeing of their inhabitants. Researchers identified five mechanisms for achieving this: upscaling, replicating, coupling/partnering, instrumentalising and embedding. We explain the mechanisms here briefly, but you can read about them in more detail in Transition Talk 6: The ARTS Transition Roadmap.

Upscaling is the process of growing members, supporters or users of a single transition initiative in order to spread new ways of thinking, organizing and practicing.

Replicating is the process of taking the ways of doing, organizing, and thinking from one transition initiative to another and adopting them to spread out these new ways.

Coupling/Partnering is the process of pooling and/or complementing resources, competences and capacities to exploit synergies between these new ways of doing, organizing and thinking.

Instrumentalisng is the process of tapping into and capitalizing on opportunities to secure resources for the continuity of the initiative’s operation.

Embedding aligns old and new ways of doing, organizing and thinking, so that the initiative can be integrated into existing governance patterns.
Over the course of the project, researchers observed a number of different ways in which the acceleration mechanisms were implemented by transition initiatives using nature-based solutions to actively provoke sustainable practices, ideas and ways of organizing. It is important to note that the acceleration mechanisms are not intended to be used by transition initiatives in practice as a “blueprint for success”, but rather as “handles for increasing reflective and transformative local practice”. The following are examples from ARTS partner cities Dresden, Genk and Stockholm to illustrate how transformative social impact can happen in cities through the use of nature-based solutions and which mechanisms come into play to accelerate change.

A Paradigm Shift in Urban Gardening in Dresden, Germany

The Urban Garden Network (UGN) is an umbrella organization that was started to connect some two dozen established garden projects with the city-region of Dresden. Since the UGN began in 2012, the number of urban gardens in Dresden has increased, due in large part to their active communication work and outreach. The UGN views its role as a connector (linking new and existing gardens to support the development of urban green infrastructure), as an educator (offering courses on cultivation, food preservation, and navigating local politics), and as an advocate (by encouraging the expansion and use of different urban spaces for nature-based learning and experimentation). The network also plays an important role by facilitating cooperation between the gardening initiatives, which are mostly citizen-driven and led, and the city administration, which often manages or owns the land. This formal cooperation with the City of Dresden’s Urban Green office and the Allotment Garden Association (representing approximately 55,000 gardens) has enabled the network to plan a “living lab”, where former allotment gardens will be transformed into community gardens, thus creating a new ownership and use paradigm for this special land.

The “living lab” is a great example of nature-based solutions driving social innovation to mediate new social configurations and change the status quo. Allotment gardens were originally intended to give city residents (crowded tenement dwellers, in particular) the opportunity for individuals to grow food and access nature at the height of the industrial revolution. In Germany, allotment gardens played a vital role for food security and nutrition after World War II. Today, fresh food has become easier and cheaper to acquire year-round due to globalization and cities are cleaner with more opportunities to access nature (both within in the city limits and in the hinterland), but the need for access to locally-grown, seasonal food is still a critical piece of the sustainable transition puzzle.

Although there are still regulations in force that pledge allotment owners to grow plants on at least one third of the surface, many allotment garden plots have morphed from food-growing plots into leisure plots leased by individuals, ostensibly locking up productive land that could otherwise be used for (shared) community gardening and local food cultivation. Many cities have been reluctant to change the traditional ownershiplease pattern of the allotment gardens due to political backlash. Dresden and the Urban Garden Network have the opportunity to establish a new use paradigm for more equitable access to local food production so that other communities can follow in their footsteps (replication) - a true social innovation.

Plan A: The Bee Plan in Genk, Belgium

Genk has an active pool of citizens that engage in nature-based practices which they often showcase at local events to reconnect citizens with nature. A good example of this is the Genk “Bee Plan”, in which public servants collaborate with a dedicated team of volunteers to strengthen bee populations in the city-region. The Bee Plan uses nature-based solutions to tackle a critical global problem at the local level, address multiple urban issues simultaneously (declining pollinator populations, city greening / beautification, environmental education, local food production, pesticide use, etc.), and strengthen social cohesion by empowering citizens to help tackle a common environmental problem in a variety of ways and participation levels.

The idea for the “Bee Plan” started when two citizens organized a public environmental council meeting to show the documentary “More Than Honey” and to express their concern about the plight of pollinators. The movie was interrupted halfway through by technical issues, but that didn’t stop the 60 people in the audience from brainstorming what they could do to improve conditions for bees in the city. The city took the initiative to assemble a working group of beekeepers, city services, environmental organizations, and interested citizens to develop a plan that addressed all of issues that came up in the brainstorm session. The Bee Plan, which was adopted by the city in 2014, has three objectives: (1) to improve bee habitat on public / communal land in the city; (2) to educate and encourage citizens to provide “bee friendly” features on their property; and (3) to support local beekeepers.

The success of the Bee Plan process showed that more sustainable practices can quickly be embedded and institutionalized in formal governance structures, while simultaneously supporting a variety of sectors and departments (e.g., city administrations, the beekeepers association, and 29 local businesses) as part of the bee awareness campaign. It also showed that collaboration between the local government and volunteers can accelerate the uptake and embedding of sustainable solutions through collective value creation. In this way, the problem-solving effort becomes a shared activity with lots of different opportunities to participate – from working on bee-friendly policy at the city level, to serving as a volunteer “Bee Ambassador”, to simply adding specific pollinator-attracting plants to one’s terrace, garden or boulevard strip. This open participatory process significantly contributes to transformative social innovation in Genk, as the experience has generated a very successful participation model that can be used for other city projects and initiatives (replication).
Using Nature to Build Lifelong Relationships in Stockholm

Miljöverkstan Flaten (translated as “Environmental Workshop Flaten”) is an example of a transition initiative in Stockholm that brings nature to people to not only improve the environment, but also to address urban social challenges, like disconnection, segregation and integration. Here, they use nature-based solutions to encourage life-long care and custody of nature by specifically working with children and adolescents to bring together diverse groups under the umbrella of new ways of environmental education and sustainability to remove social barriers and facilitate social interaction.

Flaten is a bathing site located in a nature reserve in southern Stockholm. In 2011, the site was falling apart and needed reinvestment. The founders of the initiative saw an opportunity to rehabilitate the area with a focus on environmental education and nature access, particularly for children and adolescents (ages 3-25) and recent immigrants. A group of local stakeholders initially collaborated with the City District Administration, who provided seed money for a nature trail construction project and for background research and networking to create what would ultimately become the Miljöverkstan Flaten initiative. Today, it is a full-fledged non-profit organization whose motto (“Respect for ourselves, for others and for nature”) reflects their commitment to addressing long-term environmental education and nature preservation by explicitly working with our future generations and using experiences with nature as a way to proactively address social challenges.

Some of the activities they facilitate include: letting pre-school kids create music from nature sounds and curate an art exhibition that expresses how they think about nature as a home; arranging camps and hikes where young people engage in adventure challenges to learn about respect for nature and the necessity for collaboration; and producing sustainability musicals and festivals each year to attract the broader public nearby and in Stockholm.

Miljöverkstan Flaten is a young but popular and well-supported initiative and, as a testament to their success, was recently invited by the City of Stockholm to be a key partner in a collaborative pilot project to explore how nature protected areas in Stockholm can be a part of a larger transition to sustainable urban development. In a very short time, Miljöverkstan Flaten has been able to employ the replication, coupling, and embedding acceleration mechanisms to become an important player in sustainability transition in the Stockholm region and to catalyze transformative social change.

Natural Lessons Learned

Hopefully, the stories from Dresden, Genk and Stockholm have shown that engaging in nature-based solutions is a powerful way for transition initiatives and governments to address a variety of environmental challenges and bring about transformative social change. We have chosen project examples that show how local actors have developed nature-based solutions to spark social innovation and accelerate sustainability transitions by bringing together governments, citizens and nature to make nature-based solutions an integral, necessary and sustainable part of the community. The ARTS project identified new models of participation and collaboration, new models for progressive social interaction, and paradigm shifts thereby illustrating that nature-based solutions are a powerful tool to promote social and natural regeneration, re-connection, and multiple and collective-value creation. After three years of research and analysis, the ARTS project has identified three important takeaways for accelerating sustainability transition, particularly as they pertain to nature-based solutions:

1. Collaboration is critical for change.

Maximizing the social production and mediation of nature-based solutions require collective agency – people coming together as part of a movement (transition initiatives) – and urban change agents to catalyze transformation processes. Urban change agents act as mediators, translators and networkers between government and civil society with their ability to “see the big picture” and make critical connections between domains. The ARTS project found that the majority of the transition initiatives they studied depended on a small circle of change agents, particularly when it came to promoting the agenda and activities of the initiative. But relying too heavily on change agents can make the process of change very fragile, particularly if the change agents leave or become overburdened by their (often voluntary) commitment, so it is important to cultivate conditions that support change agents and foster cooperative relationships.

2. Government bodies need cross-cutting interfaces and agile structures.

New capacities in governments are required to create an enabling environment conducive for nature-based solutions. Resourceful and capable local governments are critical for productive collaboration and finding synergies with transition initiatives. They must have the ability to quickly recognize and respond to nature-based solutions as valuable practices and outcomes of transition initiatives. Many governments currently lack the capacity to connect across domains, like food, education, and biodiversity, due to compartmentalization and departmental siloing. This makes it hard to find the right people to talk to if the idea or initiative doesn’t fit neatly into a department’s prospectus, ultimately slowing the initiative’s momentum and hindering the acceleration process. Having the capacity and institutional space to move beyond the silo, to try new processes that burst the silos and cooperate with the urban change agents in their city, can fundamentally alter how planning processes are set and implemented. Nature-based solutions require cross-departmental knowledge and multi-stakeholder involvement, given not only their integrative designs but also the promising multiple benefits (that will be yield by multiple actors).

3. Change requires long-term investment.

Just like an ecosystem needs constant flows of resources such as sun and water to flourish, urban transition initiatives that shape nature-based solutions need long-term support to develop, sustain and scale alternative solutions of value creation that are conducive to life. A “policy prize” is thus required to support transition initiatives that are experimenting and innovating with nature-based solutions beyond the initial (“seeding”) investment to enable them to scale and become more effective. Unfortunately, researchers have noticed a trend of “procleritication of funding”, where the majority of funding for transition initiatives tends to be short-term and project based. This phenomenon severely limits the long-term sustainability of the transition initiative and creates high instability and uncertainty for their activities.
We are currently present in the following regions:

- Dresden
- Budapest
- Stockholm
- Brighton
- Genk
- Stockholm

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- ICLEI - Local Governments for Sustainability
- AIT - Austrian Institute of Technology
- Lancaster University
- BEE
- CEU - Central European University

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