

Nature-based Solutions: A New Urban Planning Process for Implementation

# The Genk Experience



#### What are nature-based solutions?

The European Commission defines nature-based solutions as solutions to societal change that are...

"inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. Hence, nature-based solutions must benefit biodiversity and support the delivery of a range of ecosystem services."

## What is the Connecting Nature Framework?

Designing and implementing nature-based solutions on a scale that delivers economic, environmental and social co-benefits, while also building resilience and benefiting biodiversity, is complex, with many different issues to consider. Many questions arise and need answers.

- What is the best solution for the area?
- Who will manage it?
- How will it be financed?
- Who needs to be involved in the design, implementation and maintenance?
- How to measure the economic, environmental and social impact?
- Will it support innovation and generate jobs?
- How can we manage change?

Even identifying where to start can often be a challenge!

In response to this uncertainty, Connecting Nature has developed a process tool to help cities and other organisations navigate the path towards implementation of nature-based solutions on a large scale: the **Connecting Nature Framework.** 

The Framework identifies three distinct phases of development for a naturebased solution:

## Planning Delivery Stewardship

Throughout each phase there are **seven separate elements** that cities and other entities need to consider when shaping their individual nature-based solution: **technical solutions, governance, impact assessment, finance, entrepreneurship, co-production and reflexive monitoring**.



Cities may choose to start with any element of the Framework process and consider the others in the order that suits their context.

What emerges from the Framework process is a comprehensive 360° overview of each stage of development of the nature-based solution.

## Guidebooks

To assist you in developing your nature-based solution, Connecting Nature has produced a series of mini guidebooks. The overall Connecting Nature Framework Guidebook is a good starting point. There is also a guidebook for each element of the framework process describing the implementation steps and providing case studies to show how it works in practice. A step-by-step how-to manual on the Connecting Nature Framework process is also available.

All the Connecting Nature guidebooks and the manual may be downloaded from <u>www.connectingnature.eu</u>.

## Section 2 - City introduction and challenges

The City of Genk is a relatively small city in Flanders (Belgium) with a population of about 66,000 residents. Genk is an atypical city being one of Flanders' greenest and at the same time most industrial cities.

The city is marked by its mining history. At the start of the 20<sup>th</sup> century, Genk was a small village characterised by a landscape of heathland and small brook valleys. When coal was discovered in the ground, Genk was transformed into a mining city centred around three mining sites. Different waves of labour migration resulted in population growth and a high degree of diversity; currently 54% of the population has a different background, and 85 nationalities are represented in the city

The closing of the mining industry in the second half of the 20<sup>th</sup> century forced Genk to reinvent itself. Mass-production manufacturing centred around the Ford car manufacturing factory temporarily provided an alternative. However, when the Ford Factory closed down in 2012 leading to the loss of 14,000 jobs, Genk once more faced a transition. Despite the adversity, Genk and the surrounding region are working hard to turn hardship into opportunity.



## Section 2 – City introduction and challenges

## Making the best use of Genk's natural capital

The urban growth which occurred around the mining sites makes Genk a polycentric city, however the urban fabric is strongly interwoven with green and open space in between the highly urbanised areas. In addition to the large amount of human and social capital available in Genk, this source of natural capital offers potential to revitalise the city. Answers to many of the urban challenges the city of Genk faces could potentially be found in this part of the urban landscape. Therefore nature-based solutions are deemed a great opportunity for the city's future. Genk believes nature-based solutions could be key to building resilience to challenges such as social division, climate change, environmental issues, health problems, and so on.





## Section 2 – City introduction and challenges

### **The Stiemer Valley**

The Stiemer Valley is an 8km-long brook flowing through the heart of Genk, connecting neighbourhoods and strategic sites in Genk's polycentric structure. The mining industry and the urbanisation that followed enclosed the Stiemer Valley. This had a negative impact on the water, the environment and the people who lived nearby; it could be said that the city turned its back on the Stiemer. In recent decades, more and more voices emphasised the importance of the Valley. It was realised that the Stiemer has the potential to become a blue-green artery, revitalising Genk in many ways. This led to the Stiemer Programme, a large nature-based solutions project governed by the city of Genk aiming to redevelop the Stiemer Valley.



























#stiemervallei
#connectingnature #connectingNBS
#stadgenk

The Stiemer Prorgamme is Genk's flagship project in its climate adaptation strategy under the auspices of the Covenant of Mayors for Climate and Energy and an important element of Genk's local Sustainable Development Goal (SDG) strategy.

#### **General objective:**

Develop a multifunctional blue-green urban valley that increases the quality of life and the resilience of Genk.

#### How will this be achieved?

Getting people working together to create a city in a way that fosters stakeholder ownership, engagement and activation. Stakeholders should include the usual and unusual 'suspects'. This is known as co-creative city-making. For more on cocreation, see Section 9.



**Objectives:** 

- Connect nature with nature
  - Boost ecology and increase biodiversity in the Valley

## Connect nature with people

- Recover a climate-resilient and natural water system in the urban Valley to prepare the city for climate change
- Enable a sustainable use of the Valley
  - Valley as connector: create walking and bicycle paths in the Valley to connect city sites and neighbourhoods. Connections for soft mobility and slow tourism.
  - Valley as destination: provide recreational opportunities for people.
- Maximize the social return on investment by fostering initiatives, educational activities and co-operation that add value to the Valley

## • Connect people with people

- Strengthen social cohesion across the multiple layers of diversity in the Valley
- Create a public culture in the Valley that fuels people to embrace 'their' Valley

## • Connect entrepreneurship with nature

• Explore, identify and boost economic opportunities linked to the Valley



# Het zit in onze natuur.

Meer info: Stiemervallei.be



## **PROJECTDOELEN**

#### Hoofddoel

Als onderdeel van de ontwikkelingsstrategie van stad Genk, ontwikkelen van een multifunctionele, blauw-groene, stedelijke vallei die de levenskwaliteit van de genkenaar en de veerkracht van de stad verhoogt.

#### Hoe?

Stad genk wil de stuwende kracht zijn achter een nieuw en vernieuwend ontwikkelingstraject waarin burgers, bedrijven en organisaties mee de kar kunnen trekken.

#### Wat?

#### Natuur met mensen verbinden

- Herstellen van een natuurlijk watersysteem in het valleigebied ter bescherming van de stad tegen het veranderende klimaat
- Openstellen en promoten van de vallei rekening houdend met draagkracht van de natuur
  - Vallei als verbinding: voorzien van wandel-en fietspaden in de vallei als verbinding tussen wijken en buurten, en voor toeristen op ontdekking
  - Vallei als bestemming: creëren van mogelijkheden voor ontspanning en recreatie
- Vallei tot leven brengen door het stimuleren van initiatieven, educatieve activiteiten en samenwerkingen die een maatschappelijke meerwaarde creëren voor stad en vallei

#### Natuur met natuur verbinden

 Versterken van de ecologische waarde in het gebied en het verhogen van de biodiversiteit.

#### Mensen met mensen verbinden

- Versterken van sociale cohesie in het valleigebied
- Creëren van een publieke cultuur in de vallei die mensen ertoe aanzet de Stiemervallei te omarmen als 'hun' vallei

#### Natuur met ondernemerschap verbinden

 Verkennen en stimuleren van economische opportuniteiten gelinkt aan de Stiemervallei en de ontwikkeling ervan



## Section 4 – Genk's nature-based solutions strategy

Nature-based solutions are solutions based on nature (green) and water (blue) that provide **social** and **economic** value in addition to **ecological** benefits. As the Stiemer Programme objectives span these three sorts of value, nature-based solutions offer an attractive solution strategy, which is embraced by the city of Genk.

Nature-based solutions distinguish themselves from more traditional solutions in two ways:

- **Multifunctional** : Green-blue interventions offer multiple benefits (ecosystem services) at the same time. The Stiemer Valley, for example, as a green-blue artery, will contribute to better air quality, although this is not a specific objective of the Stiemer Programme. Traditional solutions meaning technology-based or grey are typically mono-functional.
- Appreciation in time: Natural ecosystems, under the right conditions, become stronger as they age, increasing the value of the benefits they deliver. Technology, on the other hand, depreciates from day one, which means that the value it provides systematically decreases.

## Section 4 – Genk's nature-based solutions strategy

Genk's nature-based solution strategy is contained in the implementation strategy of the Stiemer Programme. Previously, the redevelopment of the Stiemer Valley was driven by various and often disconnected initiatives. Since 2019, these initiatives have been collected in a coordinated and innovative nature-based solution strategy governed by the Stiemer Programme. This strategy is based on three pillars:

- The spatial transformation strategy: Pilot projects
- The socio-economic transformation strategy: Stiemer Deals
- Supporting strategies: Communication and participation

## Section 4 – Genk's nature-based solutions strategy

The Stiemer Programme aims to innovate at various levels:

- Technical innovation: various nature-based solutions as an alternative for grey (concrete) solutions (see Section 5)
- Governance innovation: an elaborate multi-stakeholder model (see Section 6)
- Social innovation: the Stiemer Deals (see Section 6)
- Economic innovation: adopting a dedicated strategy on entrepreneurship (see Sections 7 and 8)
- Process innovation: co-creation as a core principle (see Section 9)
- Learning innovation: an elaborate learning strategy (see section 10)




# Section 5 - Technical Solutions

The spatial transformation strategy of the Stiemer Programme consists of four pilot projects, which are being implemented:

### **1. GARDENS OF WATERSCHEI**

*General objective*: Creating a green lung for the Waterschei district, in which nature development, integrated water management, recreational use and synergy between city and Valley go hand in hand.

Nature based solutions:

- Re-naturalisation and reuse of the Stiemer
- New techniques for overflow treatment
- Integrated project and cooperation between different governments according to an area-oriented approach
- Strengthen socio-economic activities and innovations at a nearby shopping street (Stalenstraat) and business park (Thorpark)

# Section 5 - Technical Solutions

### 2. THE VALLEY ROUTE

A spatial connection between city and Valley providing an intense relationship with nature, water and people.

*General objective*: The development of a continuous cycle route connecting the city both spatially and mentally. A connection that invites users to a variety of experiences and that contributes to a switch in mobility culture.

*Nature-based solutions:* 

- Shaping the Valley route according to the specific spatial context (e.g. lighting, choice of materials, equipment, etc.)
- Developing new types of mobility hubs and promoting more sustainable forms of mobility within the car-oriented city of Genk
- Shaping the Valley route as a public space in which visiting, meeting and social interaction are possible



# before

### after



# Section 5 - Technical Solutions

### 3. SLAGMOLEN

A protected watermill as a social catalyst and gateway to a unique landscape of ponds.

*General objective:* Preservation and enhancement of the Slagmolen site (a protected watermill) in terms of its ecology, the movement and management of water, the landscape, and its social, recreational and heritage value by redesigning the building and redesigning the environment.

Nature-based solutions:

- Economic development with social and ecological added value
- Preservation of cultural heritage through development
- A public space with a strong interaction between local and regional scale, and between building and outdoor space
- integrated project operation and horizontal cooperation between partners

# Section 5 - Technical Solutions

### 4. SUDS&SODA

Sustainable urban drainage systems (SUDS) as a driver for a vital and climaterobust city district in the broader Stiemer Valley.

General objective: To demonstrate and test natural solutions for local water reuse and decentralised rainwater infiltration (how water on the surface enters the soil) in Waterschei-Noord as a strategy for sustainable water management, the creation of climate-proof neighbourhoods and as a solution for the overflow problem on the Stiemer.

### Nature-based solutions:

- Infiltration, buffering and reuse of rainwater on public and private domain
- Natural solutions for rainwater management with strong added value for the living environment
- Co-creation with citizens
- A change of behaviour with regard to water and water management
- New alliances between local and supra-local water partners

### **Problem**











# Section 6 - Governance

The city of Genk wants to be the driving force behind a new and innovative development trajectory in which citizens, companies and organisations can take the lead.

The governance model of the Stiemer Programme and its subprojects consists of a multi-stakeholder model based on the quintuple helix model in which the following actors play an important role:

- Experts from regional administrations (city, province, region)
- Experts from universities
- Experts and volunteers from nature conservation organisation (nongovernmental)
- Citizens brought together in the co-creation platform 'Friends of the Stiemer'
- Citizens, NGOs, entrepreneurs, etc.

### Section 6 - Governance

### **Stiemer Deals**

A key element of the governance model is the Stiemer Deals. The Stiemer Deals is a social innovation strategy that allows multiple and diverse actors to take action and ownership within the Stiemer Programme. The concept aims to accelerate the socio-economic transformation strategy of the Stiemer Programme.

A Stiemer Deal is a voluntary agreement between the Stiemer Programme (city of Genk) and a partner (a citizen, an organisation, an entrepreneur, regional government) in which both parties help each other to achieve their objectives (or dreams) resulting in a win-win for both parties. In each tailor-made deal, clear agreements are made about the objective of the deal, the mutual expectations, the roles, the commitment and contribution, the results to be pursued and the related actions. Actors that close deals can receive support from the city of Genk including guidance, communication, financial or logistic support, etc.

# **STIEMER DEALS**



### Section 6 - Governance

Stiemer Deals could range from small-scale initiatives by a single citizen up to large deals with entrepreneurs or companies. Thematically the possibilities are broad, as long as they can be linked to at least one of the objectives of the Stiemer Programme.

The various Stiemer Deals have the potential to evolve into a strong *Stiemer brand*. This offers a great opportunity for community and capacity building for the various actors in the deals resulting in a *Stiemer community*.

## Section 6 - Governance

### **Stiemer Deal examples:**

### 1. Nature management by psychologically vulnerable people

De Start, an organization for psychologically vulnerable people, adopted some grassland in the Stiemer Valley in cooperation with Natuurpunt, the NGO managing the nature areas in the Valley. The people of De Start will maintain the area, check the Galloway cows regularly, organise activities with other participants of De Start and so on. The city of Genk connected both partners and supported the cooperation.

### 1. Stiemerlab: a citizen science project on water quality

Luca School of Arts, a local university college, received funding from the Flemish government to organise a citizen science campaign. Together with citizens and nearby universities, they will monitor the water quality in the Stiemer Valley. The city of Genk is a partner in the project and is assisting in recruiting citizens and communicating project results.

#### **Quintuple Helix**









# Section 7 - Finance

The Stiemer Programme investment cost for the 2020-2025 policy period is estimated at €13.3 million, primarily for the implementation of the four pilot projects. This cost has been included in the 2020-2025 multi-annual budget of the city of Genk, but it assumes an external co-funding of €7.85 million. This implies that for almost 60% of the total budget, other financing sources need to be found.

# Section 7 – Finance

This poses a challenge. A small city like Genk does not have dedicated capacity to attract funding. Within the Stiemer Programme, the following strategies are followed to overcome this:

- Adopting business model thinking: the Nature-based Solution Business Model Canvas help us to explore sustainable and profitable business models for the different subprojects of the Stiemer Programme. For example, for the Slagmolen pilot project, an extensive business model canvas exercise is now serving as the starting point for co-creating a public-private-civil partnership for the redevelopment and exploitation of this old watermill site.
- Pilot project financing strategy. For each of the four pilot projects a first funding analysis has been done, focusing on the most suitable (public) funding programmes at provincial, regional and/or European level. For all identified funding opportunities, a strategy will now be developed.

### Section 7 – Finance

- *Hiring external support*. We are aiming to contract an experienced consultant for further assistance in finding and applying to appropriate funding channels.
- Investment in strategic partnerships. A number of parties such as government agencies have been closely involved in the Stiemer Programme for many years. These partners regularly identify potential funding sources and assist with lobbying and applying. This increases our limited capacity. For example, the Luca School of Arts successfully applied for funding for the Stiemerlab citizen science project on water quality.
- The Stiemer Deals also offer possibilities to attract different sources of financing. For example, for the development of the urban valley edges, a deal may be concluded with a project developer to realise a higher housing density on condition he also invests in public space. This kind of deal will be proactively explored.



# Section 8 - Entrepreneurship

One of the goals of the Stiemer Programme is to connect nature with entrepreneurship. This means exploring and stimulating economic opportunities linked to the Stiemer Valley and their development. This is not a simple task as it is not common practice to pursue explicit economic objectives in a project with an apparent focus on environment and climate. This gap is filled by hiring a dedicated *nature-based business consultant*. This person will actively seek opportunities for economic development as part of the Stiemer Programme and will attempt to stimulate entrepreneurship.

# Section 8 - Entrepreneurship

### Stiemer Deals as a catalyst for economic development and entrepreneurship

Part of the Stiemer Deal strategy is closing deals with companies and entrepreneurs who see opportunities in linking their goals to the Stiemer goals. The *nature-based business consultant* will be responsible for actively seeking this type of deal, which will impact society from an entrepreneurial perspective in comparison to those Deals made with citizens.

# Section 8 - Entrepreneurship

#### Stalenstraat as one of the economic hubs in the Stiemer Valley

In the Stiemer Valley there are a number of places with economic activity or with potential in that direction: Stalenstraat is the former shopping street of the mining sites in Waterschei, located on the edge of the Stiemer Valley. During the mining era, Stalenstraat flourished, but after the closure of the mines the trading activity decreased. The city is committed to revitalise the shopping streets of the former mining sites. The Stiemer Valley will be part of Stalenstraat's new identity and its development strategy. A green-blue redevelopment is believed to increase the level of economic activity in Stalenstraat and appreciation for the Stiemer and its objectives.





### Section 9 - Co-creation

*City-making together* is a core foundation of the city of Genk's policy. In the objective of the Stiemer Programme this is captured as a desire to be a *driving force behind a process in which citizens, companies and organisations can take the lead*. This implies that participation and co-creation are important principles in all the implementation strategies, both at strategic and operational level.

The governance model allows for co-creation following a quintuple helix model with a variety of different actors. Throughout the entire Stiemer Programme, special attention is directed to citizen participation. The Friends of the Stiemer is a key element in this approach.

### Friends of the Stiemer

The Friends of the Stiemer is a citizen panel created in 2018 that followed the Stiemer Programme via an open process. The role and composition of the panel is flexible and continuously being co-created with its participants. The Friends reflect on and participate in development of the Stiemer Valley, co-determine the agenda and are ambassadors for the Stiemer.

### Section 9 - Co-creation

A Friend of the Stiemer has a specific profile, but the panel accommodates a diversity of people (thinkers, doers, former youngsters, ties with the Stiemer ...) guaranteeing the inclusion of different ideas, opinions and values.

A Friend of the Stiemer:

- is critical, but constructive
- can think outside his/her garden and neighbourhood
- wants to think and do (taking part in activities, mobilising their own network, helping to spread Stiemer news...)

### Section 9 - Co-creation

Friends of the Stiemer:

- Are able to capture the citizen agenda regarding the Stiemer in addition to the urban agenda
- Have antennae for sending out information, make it resonate, and receive it back
- Are able to provide insights into the sometimes slow and unpredictible urban planning processes to people with a heart for and interest in the Stiemer
- Co-produce communicative initiatives and events

Interaction with the Friends of the Stiemer is done by four-monthly meetings and via a monthly newsletter. One of the members of the Stiemer team is appointed as the contact person for the Friends of the Stiemer.







# Section 10 - Learning

The Stiemer Programme is a complex project. Next to attention for the outcome, continuous attention is needed for the *process*. Reflection is a key concept here: by regularly zooming out, getting lost in complexity can be prevented. Different learning strategies are used in the Stiemer Programme.

#### **Visualising the Stiemer Programme: the Stiemer Loft**

The Stiemer Loft is a creative space in the town hall, dedicated to the Stiemer programme. The Loft is used as the meeting space for project meetings, workshops and brainstorming sessions. In order to unravel the complexity of project schemes such as project timelines, stakeholder diagrams, geographical maps and system analyses are mapped to the Stiemer Loft's wall. Creating these schemes helps to provide insight into the programme and its underlying systems, and to look at things in different ways. It also makes it easy to give project partners the necessary insight into the project: walking them from poster to poster allows you to tell the story of the Stiemer in a clear, powerful and enthusiastic way.
# Section 10 - Learning

#### **Reflexive monitoring: a continuous learning process**

To closely monitor the process of the Stiemer Programme, we use the technique of reflexive monitoring. Reflexive monitoring allows you to continuously monitor what you do, how you do it and why you do it, and to take follow-up actions based on these insights. It consists of the following elements:

• Stiemer diary. Every member of the Stiemer team keeps a diary, inspired by the technique of bullet journaling. Based on a few keywords, each team member keeps a record of what he or she believes is noteworthy in the context of the Stiemer Programme. Focus is on aspects related to the process.

## Section 10 - Learning

- Reflection sessions. Once a month the diaries are put together for an open dialogue and a joint reflection in which critical turning points and learning questions are identified, discussed and summarised in a dynamic learning agenda. Based on the learning questions, we examine which actions or strategies to follow for making progress on the learning questions.
- **Coaching session.** After each reflection session, an online coaching session is held with the partners of the Connecting Nature team. By giving these external parties a look at the process, a different perspective is added to the reflection, which can deepen the insights further.
- Eye-opener workshop. Every six months the most important learning lessons are bundled and discussed with City of Genk's policy makers and directors. To what extent the project meets expectations is discused, and whether the intended impact is being achieved. This forum makes it possible to embed learning lessons from the Stiemer Programme that have implications for the wider city organization on a larger scale.





#### Section 11 - Impact assessment

The Stiemer Programme is being approached as an innovative urban development process. By choosing nature-based solutions as its methodology, it strives for societal impact creating simultaneously social, environmental and economic value in the Stiemer Valley and it surroundings.

The impact will be assessed by a monitoring strategy. Using suitable indicators to assess the impacts of the nature-based solutions in Genk allows for the strengths and weaknesses of the interventions in achieving Genk's city objectives to be evaluated. This monitoring strategy provides an essential tool for adapting design and implementation features in real time, thus increasing their performance.

## Section 11 - Impact assessment

#### Why assess impacts?

The gathering of evidence over time can inform the decision-making and choices we make when designing and implementing interventions for urban regeneration and resilience, as well as building the case for investments in nature-based solutions.

It helps to convince investors that nature-based solutions can deliver on the multiple objectives and interests their stakeholders have.

Finally, the evaluation process helps to innovate in the planing for urban resilience and regeneration by presenting ecological, social and economic objectives in an integrative way and linking it to the different departments that can benefit from the intervention(s) of the Stiemer Programme.

## Section 11 - Impact assessment

Stiemerlab – A monitoring initiative

#### Stiemerlab

Stiemerlab is a citizen science project aiming to assess the water quality of the Stiemer. The Stiemerlab will involve citizens by training them to use sensors for evaluating the water quality at various locations in the Valley. By visualising and communicating the results in an open and accessible way, the project aims to raise awareness on the importance of water and the pressure urbanisation is posing on its quality.

# Stiemer ≈≈ lab