URBAN GREY COLOURING GREEN AND BLUE

FROM PLAN TO PRACTICE IN FLANDERS AND EUROPE

Final report LIFE-project Green4Grey

GREEN4GREY

VLAAMSE LAND MAATSCHAPPIJ

Vlaanderen
is open ruimte

SUMMARY

Each day, six hectares of open space are lost in Flanders. Their place is filled with hard developments such as housing projects, business parks or infrastructure.

With Green4Grey, a Life+ project, the Flemish Land Agency, together with partners, is investing in green and blue infrastructure in urbanised areas. This report offers an overview of what has been achieved and the lessons that can be drawn from the project.

With a settlement area of 33% and 14% concretised, Flanders is one of the greyest urbanised regions in Europe. The increasing population in the Flemish cities and suburbs means that this trend will continue. This has an impact on nature, water management and quality of life. That is why Flanders wants to reduce the daily claim on space to 0 by 2040. In so doing, it is contributing to the Europe 2020 Strategy. Green4Grey aims to show how this can be achieved with multifunctional green/blue projects.

Green4Grey has implemented green/blue infrastructure in six project areas: three projects in the Flemish Belt around Brussels and three in the De Wijers urbanised area around Hasselt-Genk. A multifunctional, integrated and participative approach has been chosen for the green/blue landscape transformations. This approach engenders greater consensus and ownership, which increases both the chances of success and the sustainable continuation of the projects. In addition, a future vision was developed for two larger valley areas: the Stiemerbeek Valley in Genk and the Molenbeek Valley in Beersel and Sint-Genesius-Rode. These visions also form a first step towards setting up green/blue infrastructure in these environments in the future.

The five examples in this report show that participation with various target groups (local residents, policy makers, experts, students, businesses, children, etc.) does indeed pay off. Collaboration, workshops and creative experiments can give rise to inspiring visions, ideas and examples. Involvement and ownership grow.

The social added value of the green/blue projects in the six project areas is demonstrated. The projects bring children living in the city in contact with nature and increase the consensus for nature development and biodiversity. They have a positive impact on social cohesion and on mental and physical health. They are a dam against pollution of nearby nature reserves. They provide a response to the risks of flooding. In order to tackle the latter at the root, a vision on water and nature management is required in a much wider area. In this context, the future visions for the Stiemerbeek Valley and the Molenbeek Valley call for more natural water buffers and flood plains and opportunities for infiltration. This will prevent polluted water entering the streams and allow more pure rainwater to flow into nature reserves.

The project has shown that more green/blue elements can stop further greying of the city and suburbs. Green4Grey has drawn lessons from the projects and translated them into ten recommendations. To push green/blue higher up the agenda, there is a need to raise awareness at all policy levels and among local target groups. It is also important not to underestimate the impact of communication on the projects. Encouraging Flanders to invest more in green/blue infrastructure will bring the objective of reducing the daily land take to 0 one step closer.

INTRODUCTION

Each day, six hectares of open space are lost in Flanders. Their place is filled with hard developments such as housing projects, business parks or infrastructure. This has an impact on nature, water management and quality of life.

With Green4Grey, a Life+ project, the Flemish Land Agency, together with partners, is investing in green and blue infrastructure in urbanised areas. It aims through concrete projects to provide examples of how to implement the European Union's Europe 2020 Strategy.

This report offers an overview of what has been achieved and the lessons that can be drawn from the project. It aims to inspire local, regional and European policymakers with good practices that demonstrate the versatility and importance of green and blue infrastructure to suburban areas.

The first chapter takes a closer look at the greying of the open space today and the challenges of tomorrow. The Green4Grey project aims to meet these challenges and impart a new versatile and natural character to undeveloped areas in the Flemish Belt.

In chapter 2, we discuss the added value of a multifunctional and participative approach. This is illustrated with some participation projects (chapter 3) and a sketch of the infrastructural projects (chapter 4) for the six project areas.

The last chapter focuses on the best practices from the Green4Grey project. Green4Grey emphasises the importance of raising awareness in all policy levels and local target groups for pushing green/blue infrastructure higher on the agenda. The report concludes with a summary and the impact of communication about the projects.

1 THE CHALLENGE – GREEN FOR GREY

In order to place Green4Grey in context, this section takes a closer look at the greying of the open space today and the challenges of tomorrow. It then discusses the objectives of the project.

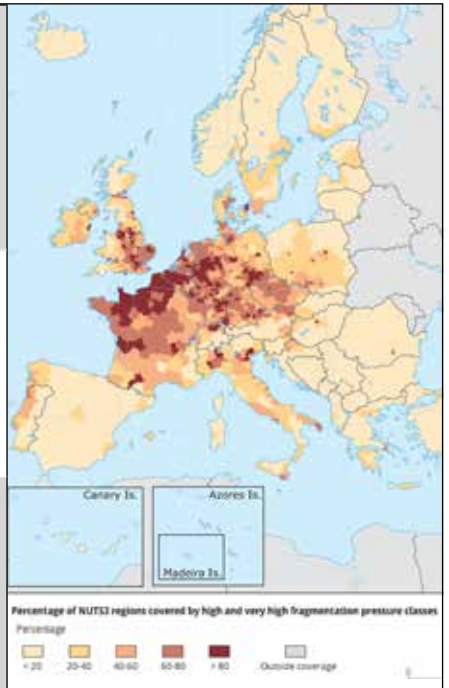
1.1 THE FRAGMENTED 'GREY' FLEMISH LANDSCAPE

1.1.1 **THE CURRENT SITUATION** Flanders leads in settlement area and fragmentation

Each day, six hectares of open space are lost in Flanders. That increasing claim on open space goes hand in hand with a concretisation of the ground surface and a fragmentation of the landscape into ever-smaller fragments of open space, surrounded by other functions. In the city and the periphery, the pressure of grey infrastructure on the remaining open space is felt most strongly. Flanders is one of the greyest urbanised regions of Europe and one of the leaders in fragmentation of open space.

Settlement area (EC term for claim on space) concerns the space taken over for housing, infrastructure, industrial and commercial and recreational purposes.	• Less than 4% in most EU Members States • 33% in Flanders • 61% in de Flemish city outskirts, 85% in the cities
Concretisation means that the soil surface has been modified by the application of artificial semi-permeable or impermeable materials to such an extent that essential soil functions are lost.	• 14% in Flanders
Fragmentation is the division of the open space into smaller and/or less cohesive wholes, surrounded by other functions.	• 80% in Flanders. Flanders has a leading position, after Luxembourg

Data source: 'The spatial status of Flanders in themes and indicators', Spatial Development Department Flanders, 2016; 'Landscape fragmentation in Europe', European Environment Agency;



Fragmentation in Europe. Darker colours indicate larger pressure of grey infrastructure on fragmentation of the landscape.

1.1.2 **TREND** - an increasingly grey landscape in and around Flemish cities

In Europe, settlement area increased between 2006 and 2012 by 2.5%. This trend has not yet been reversed. In the future, the population will continue to grow in most European (peripheral) urban areas.

In Flanders, 6 hectares of open space has been lost each day during the past ten years in respect of new hard developments, such as residential projects, industrial estates or infrastructure. With an expected growth of the Flemish population of 800,000 by 2060, the pressure to carve up open space for 'grey infrastructure' will continue.

The population is increasing particularly in the Flemish cities and suburbs with open space disappearing as a result, and bigger clusters are fragmenting into smaller ones and residual small fragments disappearing.

1.1.3 **THREAT** - mono-functional grey (peripheral) urban areas

In Europe and Flanders, the 'greying' of suburban landscapes causes (in) direct environmental and health effects:

- loss of biodiversity and natural biotopes;

- lack of natural water storage possibilities and space for infiltration, with flooding as result;

- loss of possibilities for residents and workers to relax in the open air;

- poor water quality caused by discharges from the urban environment;

- lack of space for carbon storage and capacity to address the effects of climate change;

- lack of space for sustainable food production;

- heat inconvenience and air pollution.

In Flanders, the quality of life in the city and suburbs is noticeably under pressure. The green areas that can fulfil diverse functions are becoming ever smaller and are being transformed into grey, mono-functional landscapes with limited added value for society. Furthermore, the remaining green fragments must fulfil the largest number of functions or ecosystem services in exactly those places where they are under the most pressure.

1.1.4 **CHALLENGE –** stop the 'greying' of the city and suburbs

Flanders wants to reduce the daily claim on space to 0 by 2040. This is a top priority as confirmed in the strategic vision in the Flanders Spatial Development Policy Plan, which was recently approved by the Government of Flanders.

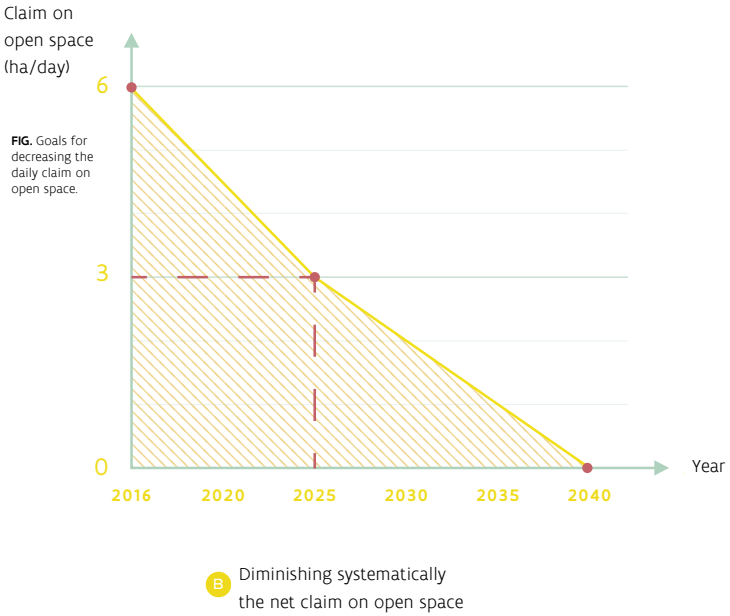


FIG. Goals for decreasing the daily claim on open space.

The challenge for the Flemish suburbs is thus:

- to stop the trend towards fragmentation and the disappearance of green spaces;

- to connect the grey city landscapes with larger clusters of open space through intertwining green/blue veins.

In this way, Flanders will take a step on the Roadmap to a resource-efficient Europe from the European Commission's Europe 2020 Strategy. The milestones in this area:

- "By 2020, EU policies will take into account their direct and indirect effect on the use of land both in the EU and worldwide, and by 2050 the net claim on space shall be zero.

- By 2020, ecosystems and their services will have been retained and enhanced by the development of green/blue infrastructure and at least 15% of degraded ecosystems will have been restored."

1.2 MULTIFUNCTIONAL 'GREEN/BLUE' AS COUNTERBALANCE

The pressure on open space will not let up in the future and most certainly not in the Flemish suburbs.

The objective of the Green4Grey project is to give the undeveloped residual space in Flemish suburbs a new versatile and natural character with so-called green and blue infrastructure. Development of the residual areas will give them functions with considerable social added value, such as water storage, recreation, food provision, green lungs, etc. Green4Grey does, after all, promise that well-functioning and versatile 'green/blue landscapes' offer the best chance of stemming the 'greying' of the suburbs.

Green4Grey aims to show how Flanders can implement the policy objective of stopping the increasing claim on space by creating multifunctional green/blue spaces. This does not always need to mean restrictions on 'hard' infrastructure. Flanders can equally promote a positive narrative and create opportunities by investing in 'soft' green/blue infrastructure.

At European level, too, the biggest challenge is to stop the greying of suburban areas. The Green4Grey project acts as an example to show how Flanders, one of the most fragmented and built-up regions, faces this challenge. It also takes into account the recommendations for the development of green/blue infrastructure at European level.

This publication examines three principles for ensuring green/blue infrastructure in the future. They form the basis of the Green4Grey project:

1) MULTIFUNCTIONAL DESIGN (CHAPTER 2)

Combining diverse functions of green/blue infrastructure (water storage, recreation, food provision, green lungs, etc.) increases functionality, limits the demands on space and creates greater added value for society. The various end-users will assess the value of the green/blue infrastructure in this way.

2) TOGETHER AND SUPPORTED (CHAPTER 3)

The plans are supported because local residents, workers, policymakers, etc. have designed them together. Giving everyone a voice in the public space promotes the feeling of ownership. Social cohesion grows and the sustainable maintenance of green/blue infrastructure is ensured once it has been set up.

3) IN THE PICTURE (CHAPTER 4)

Green4Grey makes the investments in green/blue infrastructure visible through diverse communication channels. In doing so, it puts the various functions of green/blue infrastructure in the spotlight in diverse forums. In this way, Green4Grey will convince others of the importance of green/blue infrastructure and stimulate future new initiatives for this.

What is green/blue infrastructure?

Green and blue infrastructure in an urbanised environment means all natural and semi-natural landscape elements that (could) form a valuable component of a green/blue network. This can mean landscape elements at different spatial levels of scale: from individual rows of trees to entire valley systems. Examples of green landscape elements are hedges, hedgerows, bushes, orchards, forested areas, natural pastures and ecological parks. Blue landscape elements have to do with water. These could be pools, ponds and pond systems, wadis, artificial buffer basins or waterways. Together these form the green/blue infrastructure.

2 THE APPROACH – COLLABORATING ON MULTIFUNCTIONAL GREEN/BLUE INFRASTRUCTURE

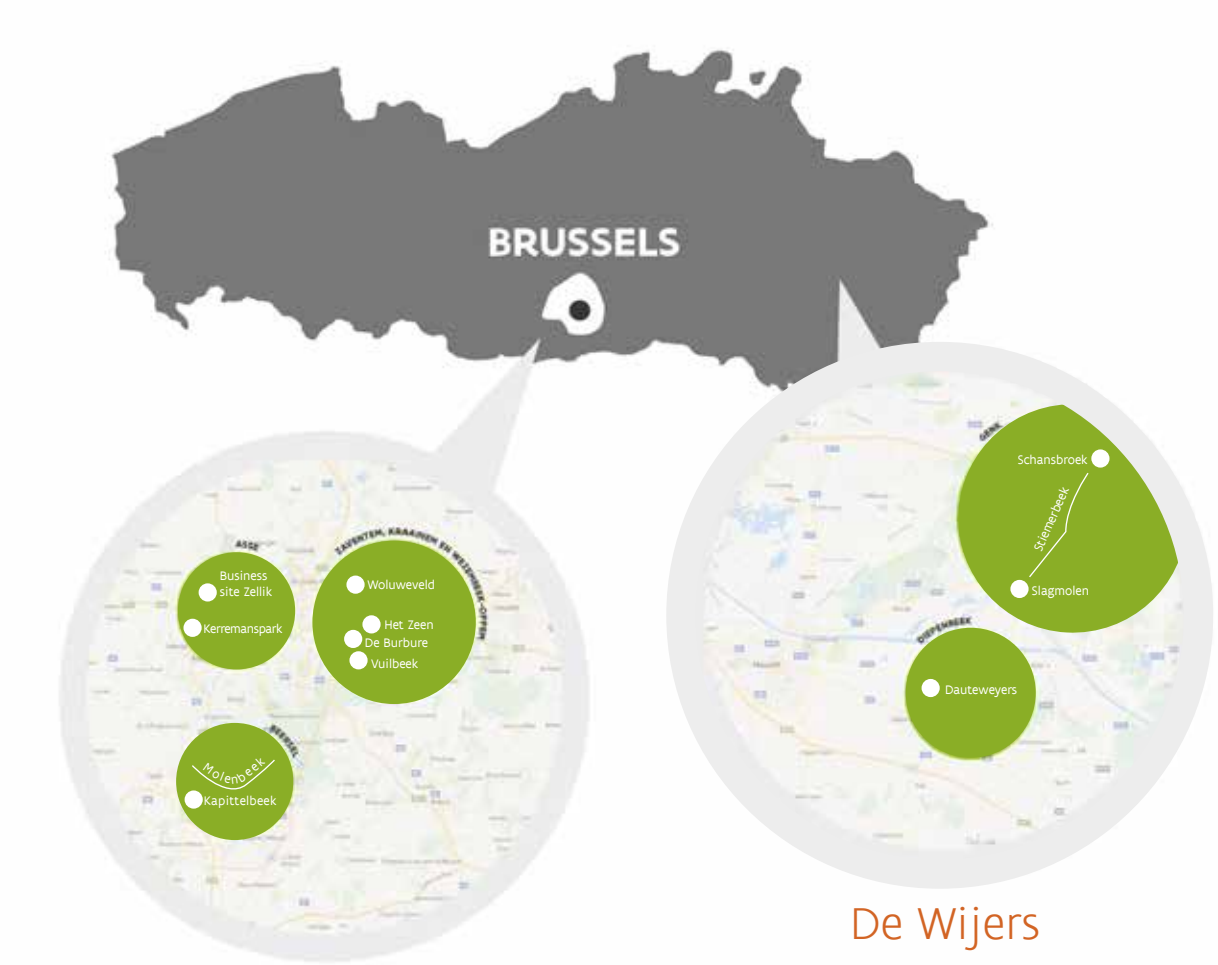
This chapter first presents the areas of the Green4Grey project. The added value of a multifunctional, integrated and participative approach is then explained.

2.1 SIX PROJECT AREAS AND TWO VALLEYS FLANDERS SUBURAN AREAS

In is no coincidence that Green4Grey focuses on suburban areas. These areas not only present many challenges as a 'greying' landscape, but can also yield considerable benefits. Moreover, the number of potential users of the future green/blue infrastructure is largest in suburban areas.

Green4Grey has implemented green/blue stepping stones in six project areas: three projects in the Flemish Belt around Brussels and three in the De Wijers urbanised area around Hasselt-Genk. All the project areas are green and undeveloped residual spaces that are under pressure from the encroaching urbanisation.

In addition, a future vision was developed for two larger valley areas: the Stiemerbeek Valley in Genk and the Molenbeek Valley in Beersel and Sint-Genesius-Rode. These visions are a first step towards setting up a green/blue infrastructure in these areas in the future.



The Flemish Belt

De Wijers

The Flemish Belt

is made up of the nineteen Flemish municipalities around Brussels. The Flemish Land Agency is working on the reinforcement and design of the open space that is under pressure from extensive urbanisation. The millions of people who live and work there today require sufficient qualitative open space, and so do the future generations. The Flemish Land Agency, together with partners, is working on improving the quality of the environment in the Flemish Belt; this is being achieved partly by land use planning.

De Wijers

is a unique area measuring 700 hectares with more than 1000 ponds in the Hasselt-Genk area. It is home to rare animal and plant life. In addition, De Wijers is a region with a rich cultural history, a beautifully varied landscape, a thriving economy and a strong social dynamic. It has many tourist attractions, such as Bokrijk, Kelchterhoef, Hengelhoef, Kiewit Domain and the Zolder Circuit. In order to develop these assets in the future, the Flemish Land Agency, together with seventeen partners, has started the De Wijers project, which is being realised via land-use planning, among other things

www.dewijers.be

2.2 GREEN/BLUE LANDSCAPE TRANSFORMATIONS

Green4Grey has undertaken landscape transformations under the motto 'Green for Grey'. The development or enhancement of green and blue landscape elements transforms grey, semi-artificial landscapes into more natural urban landscapes.

The restoration of natural dynamics is crucial for the future climate resilience of the city and suburbs. In this way, natural landscapes are created that play an important role in avoiding the urban heat-island effect, in buffering rainwater and where possible reducing the degree of concretisation by demolishing any hard surfaces that are no longer used. The project areas form building blocks for resilient green/blue networks that combine different functions or ecosystem services.

Which functions does green/blue infrastructure have?

The functions of the various project areas differ greatly. But each time the design resulted in **a varied and distinctive setting that is used and appreciated** by a large group of users.

Nature and biodiversity:
Valleys in a peri-urban context often serve as hotspots for protected fauna and flora, such as the tree frog, the grass snake or rare orchids.

Environmental education:
People building their own living environment, learn more about nature and appreciate it more.

Health and well-being:
Green spots not only provide fresh air but also offer a retreat from urban stress.

Green business sites:
Working in a beautiful green landscape enhances productivity and well-being.

Green living environments:
Attractive green neighborhoods and green elements between residences increase real estate value.

Climate adaptation:
Green climate-proof environments can help to cope with climate change impacts, such as alternating periods of drought and heavy rain.

Green environments for outdoor activities and as meeting places:
Green spots in a peri-urban context can be designed as attractive places to meet people. By connecting these stepping stones, a green network is developed that stimulates cycling, hiking, jogging,....

Sustainable food production:
A tree orchard or pesticide-free community garden provides local and sustainable food.

Water quality improvement:.
Enhanced water quality is favorable for people, animals and plants

Water retention:
Naturally meandering streams not only stimulate biodiversity, but also act as water buffers offering protection against flooding during heavy rainfall events.

Het Zeen (Zaventem):

BEFORE

Transforming a traditional park with lawn into a natural city landscape that combines water storage and biodiversity with recreational activities.

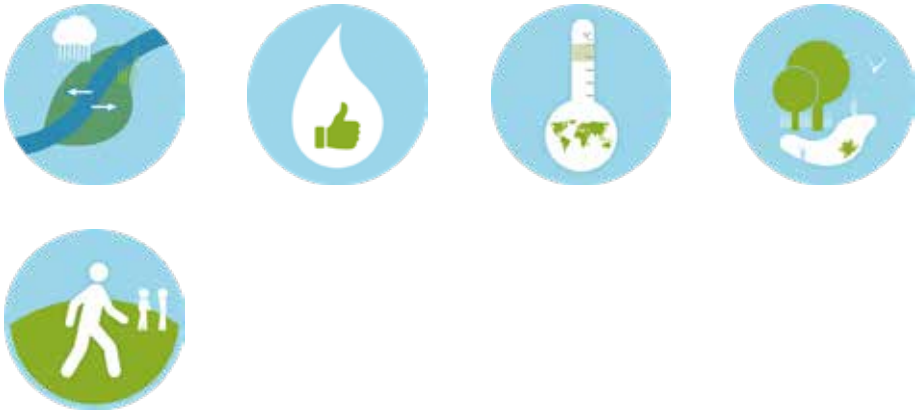
AFTER

Slagmolen (Genk):

BEFORE

A poorly accessible pedestrian shortcut was transformed into a wooden duckboard path across a newly created purifying through-flow marsh. The new footpath also now has a hedgerow to promote typical species such as the small White Admiral butterfly.

AFTER



Schansbroek (Genk):

BEFORE

Upgrading the overgrown historical earthwork with an attractive landscape element in the Schansbroek neighbourhood park

AFTER

Schansbroek (Genk):

BEFORE

Transformation of a former mining basin (winter image) into a pleasant resting place for visitors to the Schansbroek neighbourhood park and employees of the Thorpark, the adjacent international technology park on the former mining site (summer image).

AFTER

Dauteweyers (Diepenbeek):

BEFORE

Reorganisation of the nature area where threatened species such as the tree frog have a chance of survival and reproduction, as well as a place where walkers are welcome.

AFTER

Kapittelbeek (Beersel):

BEFORE

Transformation of an artificial concrete reservoir into a natural pool which can serve as a biotope for amphibians. The pond is part of an educational nature trail and an upgraded recreational axis close to several residential neighbourhoods. The pond now also acts as a natural flood zone thanks to a connection to the flood-sensitive brook.

AFTER

Kerremanspark (Asse):

BEFORE

A wet area is transformed into a pool for amphibians with a duck-board path for recreational users and workers during their lunch break.

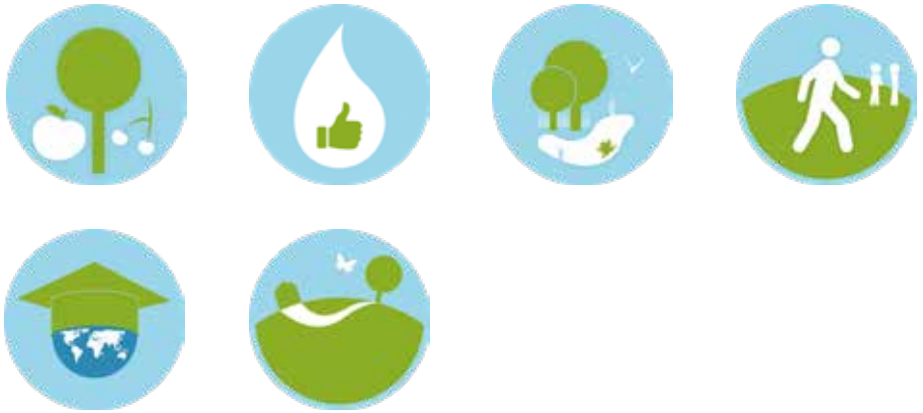
AFTER

Kapittelbeek (Beersel):

BEFORE

Conversion of agricultural land into fruit orchard with sheep grazing. The change in the use of the land, together with the buffers of the neighbouring fields (an indigenous hedge was planted and a strutted dam created) ensures that less nutrients from the agricultural area end up in the brook, thus promoting the quality of the water. A bee hotel and an information board about fruit orchards all add to this attractive stopping place for people seeking recreation.

AFTER



Het Zeen (Zaventem):

BEFORE

The road was oversized and was dug up and converted into a park area with recreational cycle paths and footpaths. This will have a positive impact on water storage, thanks to a larger infiltration capacity of the open space, and offers more opportunities for fauna and flora.

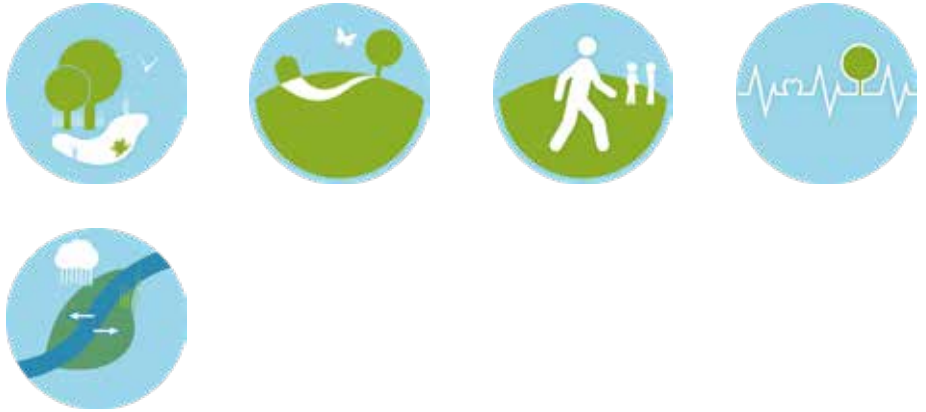
AFTER

Kapittelbeek (Beersel):

BEFORE

Conversion of the communal areas of a residential neighbourhood:
- verges with non-indigenous planting stock are sown with an indigenous plant mixture which will have a positive impact on biodiversity;
- communal paved grey areas will be converted into green recreational piazzas. This also makes the residential neighbourhood more attractive.

AFTER



2.3 MULTIFUNCTIONAL DESIGN

Despite the considerable pressure on space, areas in Flanders are often designed and used for only one function. Examples of such one-sided or mono-functional design are areas that serve exclusively for food production or for water storage. Often the result is a landscape with little identity and with limited social added value. In urbanised areas, the competition between 'green' and 'grey' functions with a greater socio-economic impact is increasing. A mono-functional green design thus offers insufficient guarantees for the sustainable retention of the open space.

Where multi-functionality and interweaving has long been a policy choice for the built environment, Flanders recently opted, in the strategic vision of the Flanders Spatial Development Policy Plan (BVR 13/07/2018), for these principles for the open space.

The six project areas of the Green4Grey project and the two long-term visions at valley level can be regarded as sample projects for multifunctional design of open space in Flanders. Multifunctionality is important both in the design (planning stage) and in the development and implementation of the technical plans (execution stage).

The Green4Grey project strives for multi-functionality, because in this way

- it limits the settlement area;

- it achieves the objectives of various policy areas (integrated water management, retention of landscape qualities, strengthening of ecological infrastructures, tourist/recreational use attuned to the potential of the space, etc.);

- it assesses the various functions simultaneously and in a balanced way by means of an integrated area-focused approach;

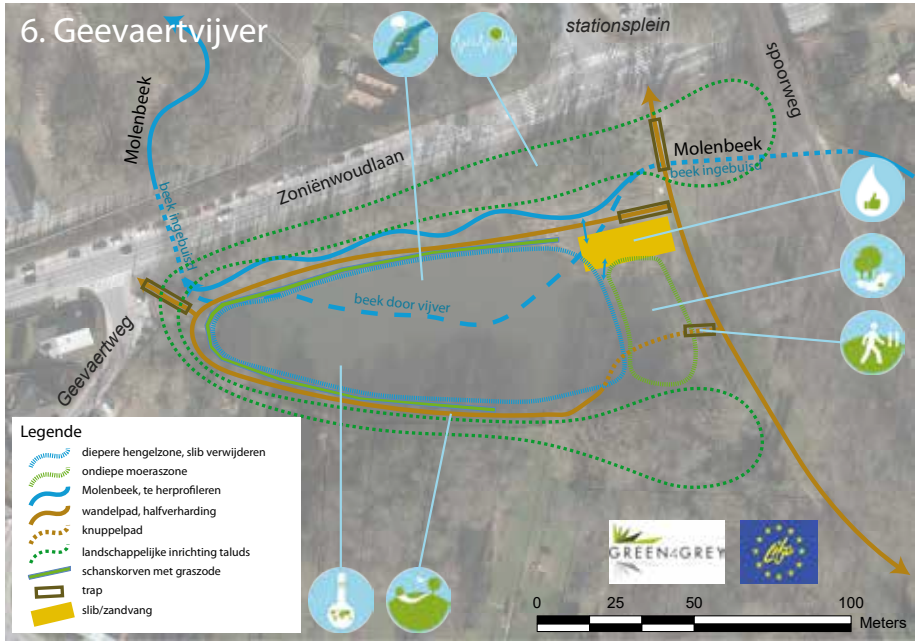
- it increases the biodiversity and the ecological functioning of these places by simultaneously focusing on diverse functions (integration of different ecosystem services);

- it creates win-wins that offer social added value by interweaving different functions.

By integrating different functions, the project areas address diverse interests (environment, social, economic objectives) and diverse target groups benefit from the new design. In this way, the green/blue future is guaranteed for these areas. This must take place both in the planning stage (figure p. 33) and the execution stage (figure p. 34) of the project.

Benefits created from the transformation of the mono-functional abandoned valley area into a multifunctional park that combines many functions are illustrated in the below figure (figure p.35).

MULTIFUNCTIONAL PLANNING:
In the Molenbeek Valley (Beersel, Sint-Genesius-Rode)



In the Molenbeek Valley (Beersel, Sint-Genesius-Rode) a new plan has been drawn up for the entire valley. For this, the various sub-areas were taken into consideration, including the area around the Geevaertvijver (pond area). The functions that we combined are nature and biodiversity, climate adaptation, water retention, water quality improvement, outdoor activities in green areas, health and well-being in busy environments.

MULTIFUNCTIONAL DESIGN:
In the Kerremans Park (Asse)

In the Kerremans Park (Asse), the new green/blue infrastructure was designed in such a way that a variety of functions were combined. After completion, this gave the area considerable added value for workers, local residents and recreational visitors. These functions were an analysis of the before and after situation clearly demonstrating the multi-functionality over time.

MULTIFUNCTIONAL DEVELOPMENT:
COMPARING THE SOCIAL FUNCTIONS BEFORE AND AFTER DEVELOPMENT – Kapittelbeek (Beersel)

Previous situations in Kapittelbeek:
grassy plain with goalpost, old concrete reservoir with low-grade nature, straighened stream with path that prevents natural meandering and in bad condition

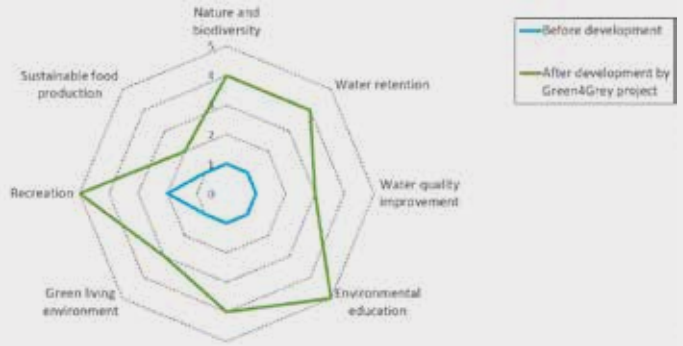
Sustainable food production

Nature and biodiversity

Water retention

Water quality improvement

The graph shows the evolution of the social functions before and after the development by Green4Grey. These are peri-urban or suburban nature and biodiversity, water buffering and storage, water quality improvement, environmental education, climate adaptation, greener living environment, recreation and activities in the open space, sustainable food production. Experts gave scores of 0 to 5 based on the terrain characteristics and the design measures. The after-situations are shown on the photos.



LEGENDE

0-1: no or hardly any presence,
2: limited presence,
3: average presence
4: good presence,
5: presence in abundance

Environmental education

Climate adaptation

Green living environments

Green environments for outdoor activities and as meeting places

2.4 INTEGRATED AREA DEVELOPMENT: FROM PLAN TO EXECUTION

All the project areas are approached in an integrated way in order to give them a multifunctional character. Each time, the various functions and themes are simultaneously assessed against each other. In all the project areas, an intensive consultation or participation process was completed (see chapter 3) in order to arrive with all the partners and target groups at a balanced plan.

In this way, the designs offer an answer to as many challenges existing in the area as possible. Nature and landscape form the basic structure, which is further developed in all the project areas. Depending on the possibilities and wishes of an area, various complementary functions are added to this, so that considerable added value is achieved for the community.

Each time, a high quality, balanced plan is developed with sufficient support. Moreover, this area-focused approach increases the quality of the environment and the dynamics in the project areas, and strengthens the identity of the area.

Before and during the work, there is also a strong focus on communication with and involvement of the future end users. Green4Grey ensures that initial ambitions and wishes are also retained during the implementation and makes minor adjustments where necessary that focus on the needs of the end users or the site managers. The preparation of management plans and agreements about the future maintenance of the new green/blue infrastructure ensure the sustainability of the implementations. At the end of the work, the project areas are festively inaugurated with the neighbourhood.

INTEGRATED APPROACH

COMMUNICATION

PARTICIPATION

1 Study stage

- **Area analysis: landscape and nature as basis**
  - preparatory studies and consultations
  - study into opportunities for green/blue infrastructure
  - initial planning

2 Programme stage

- **Design sketch: looking for added value through multi-functionality**
  - seeking a balance between functions and objectives
  - translation into measures
  - first estimate of cost
  - drawing up the financing plan and the implementation

3 Design stage

- **Development plan: technical translation into feasible plans**
  - technical plans
  - work specifications
  - permits and authorisations

4 Execution stage

- **Site implementations**
  - tenders, implementation and monitoring work

5 Communication & administration

- **Project completion**
  - end of works and official opening of the new area
  - transfer and management arrangements
  - administrative completion

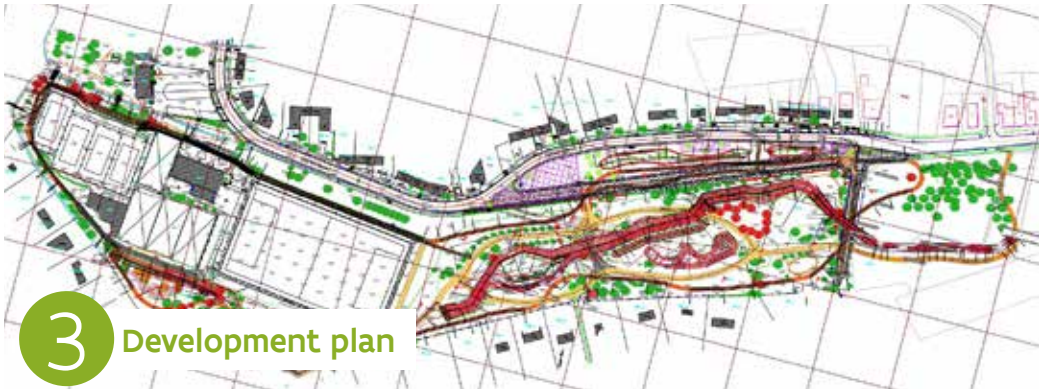
4 Site implementations

1 Area analysis

Het Zeen (Zaventem):

An integrated approach at the study stage leads to an integrated design of the project zone. The new area has various functions: water storage, climate adaptation, greener living environment, environmental education, recreation, peace and quiet in the busy suburban surroundings, and improved water quality.

2 Design sketch



3 Development plan

5 Project completion

2.5 THE IMPORTANCE OF A PARTICIPATIVE APPROACH

In suburban areas, pressure on the open space causes many, sometimes contradictory, claims on space. With the large number of local residents and potential users around the remaining open space, consensus is crucial for achieving success with design projects.

Participation is not an end in itself, but a means that has the following objectives in the Green4Grey project:

1) improving the quality and sustainability of the plans by gathering local knowledge and designing the areas specifically for the future users. In this way, the mentality changes from NIMBY (Not In My Backyard) to PIMBY (Please In My Backyard) for green infrastructure;

2) strengthening the future users in their ownership of the area, so that there is commitment to take action for more green space in the suburbs. This also strengthens social cohesion;

3) stimulating learning from each other and getting to know other viewpoints. Neighbours, colleagues and politicians exchange experiences or knowledge about ecosystem services and thus expand their own possibilities. In this way, collaborations and new initiatives are stimulated after the end of the project.

The participation ladder below shows the palette of interaction possibilities according to the influence that target groups and stakeholders have on the development of a plan. All the Green4Grey projects are achieved by degrees of participation, according to the needs and the target groups involved. The figure below shows a selection of the interaction techniques used on the participation ladder.

Green4Grey collaborates with the following target groups:

1. Local residents: future users, young and old, immigrants and natives, etc.

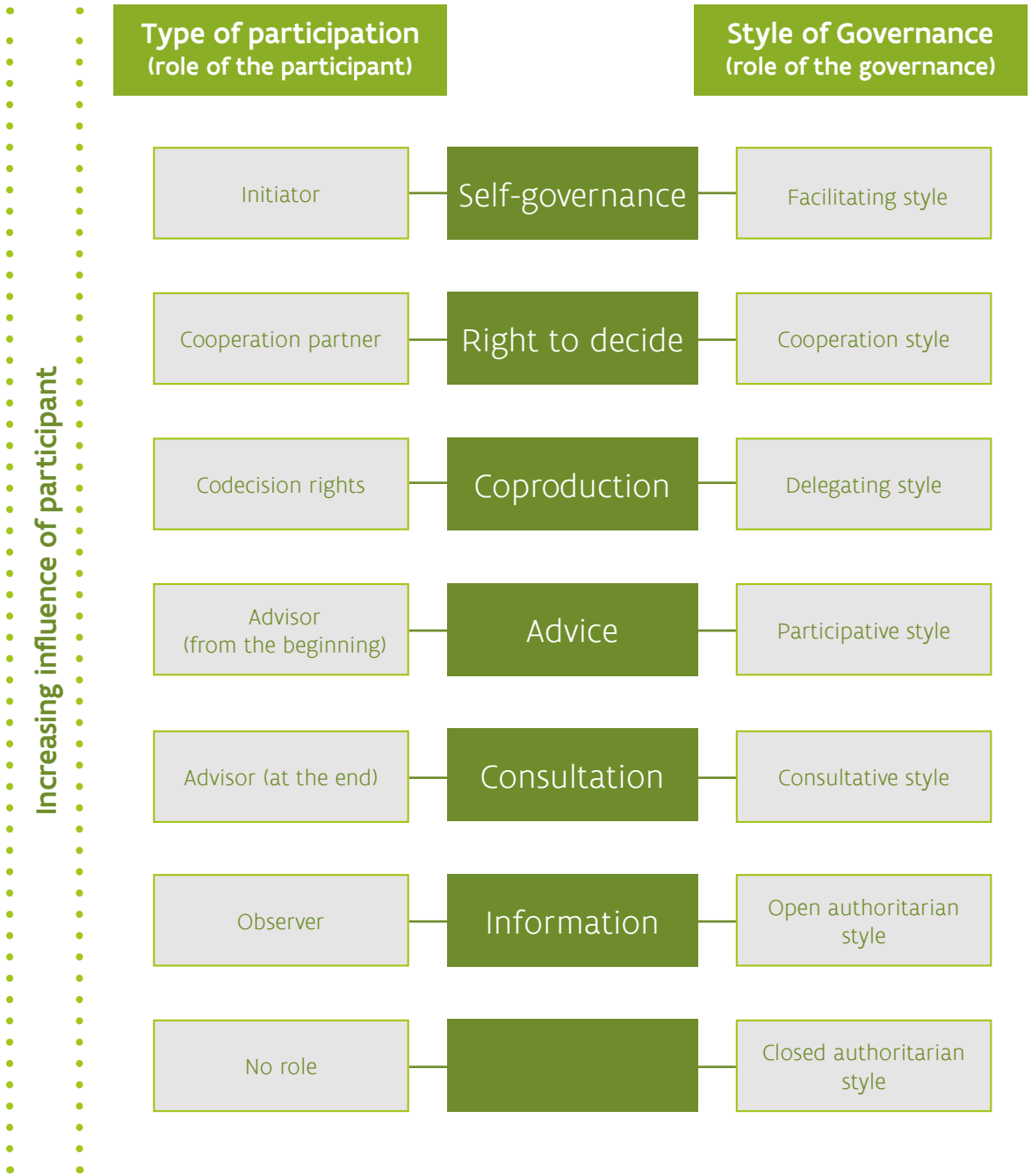
2. Policy makers and experts: local and supra-local, EU, mayors, aldermen and steering bodies

3. Students and experts: the experts and policymakers of the future, civil servants, NGOs, academics

4. Children: the future generation

5. Private or business sector: business sites, employees, etc.

In the next chapter, a number of Green4Grey participation processes will be discussed in greater detail.



Increasing transparency of content

Participation trajectories in Green4Grey

- Design workshops Groene Noordrand
- Dream sessions neighbourhood park (Schansbroek)
- Guided walk: Day of the Slow Road (Eenenboom)
- Neighbourhood 'Café Curange'
- Business workshops (Slagmolen)
- Technical plans consultation (Zaventem)
- Bottleneck Walk (Slagmolen)
- Landscape 'Do Day' (Diepenbeek)
- Business questionnaire Thorpark
- Grass snake safari with workers (Zellik)
- Infoquiz Stiemerbeek valley
- Final Events (Zellik, Zaventem, Kapittelbeek, etc.)
- Construction site walk Night of the Schans
- PURPLE working group (EU/regions)
- Sitting at the start of the works
- Tree planting campaign (Kapittelbeek)
- Info market (Stiemerbeek valley, Zellik, Gordel Festival)
- Info evening on work, Kapittelbeek
- Stakeholder workshop, Research park Zellik businesses
- Public event
- Partner day Flemish Belt
- Buurtlab@Curange
- Tree frog safari (Dauteweyers)
- Environmental advisory councils, municipal councils (Zaventem)
- Day of De Wijers, Gordel
- Neighbourhood party
- Symposium 'De maten'
- Guided walk with schools (Kapittelbeek)

3 SEVERAL PARTICIPATION PROJECTS IN DETAIL

This chapter provides examples of how different forms of participation can mean added value in the development of projects for more green/blue infrastructure.

3.1 CO-CREATION WITH LOCAL RESIDENTS

Schansbroek Case – area development customised to future users

BACKGROUND

When plans were made to redesign the rather run-down neighbourhood of Schansbroek in the shadow of the mine and the Thor business park, there was concern in the neighbourhood that the football pitch and the illegal vegetable gardens would disappear. To create greater support and ownership, a participation project was started with the city of Genk around the question: "How can we turn Schansbroek into a neighbourhood park for all of us?" In order to produce a design for this meeting place customised for future users, a district manager went door-to-door in the towns, in the surrounding residential areas, in the PCSW service centre, at the football club, etc.

PROCESS

Step 1: open – dreams – ideas – stories – getting to know each other

The kick-off meeting with around fifty interested participants started with a walk through the neighbourhood. The participants then set out their dreams for the neighbourhood by making photo collages, by proposing a calendar for the neighbourhood, collecting stories, etc. By working in a very accessible way, with lots of drawings and pictograms, many non-Dutch-speaking participants were also involved in the process. In this way, a whole mass of ideas was collected.

Step 2: focus - priorities - zooming in

These ideas were assessed during a second workshop for four categories (gardening, sport and games, education, meeting) by having the participants allocated a fictitious budget for the ideas they thought were most important. The participants were then asked to sketch a map of the park themselves showing how the new design might appear.

Step 3: landscape architects get to work - return visit

The designers of Flemish Land Agency and the city of Genk set to work, using the wishes of the neighbourhood as inspiration. Three months later, the design was presented to the neighbourhood making use of large plans and visualizations of the interventions in the local football canteen. Small groups then took a walk, during which the landscape architects explained step by step what they wanted to achieve.

DID THE APPROACH PAY OFF?

The design for the neighbourhood park was enthusiastically received and approved in 2016. Those taking part in the participation process felt genuinely involved and were enthusiastic that their wishes and comments were actually integrated into the plans. They enthusiastically welcomed the measures taken against vandalism and proposed that the neighbourhood should also adopt responsibility itself for greater social control and dynamism. For the designers, the participation process meant a big investment in time. This was certainly recouped in the turnaround time during implementation and in sustainable use and maintenance. During the works, which started in the spring of 2017, there were hardly any complaints. The residents regularly came to take a look at how things were progressing with 'their park'. The new allotments were immediately sold out.

Step 1

Step 2

Step 3

3.2 DEVELOPING A VISION WITH POLICYMAKERS AND EXPERTS

EU-workshop – lessons for achieving green/blue infrastructure in European peri-urban areas

BACKGROUND

Flanders is top of the list in Europe for fragmentation and concretisation and is therefore an important test case for developing ways to make the suburbs greener. Urbanisation is, however, omnipresent in Europe. According to the European Environment Agency, almost 75% of the EU's population lives in urban and suburban environments.

Of course, each region and member state of the EU has its own landscape, cultural and socio-economic preconditions for the realisation of green/blue infrastructure. Yet it is interesting to discuss and compare recurring issues with regard to the implementation of green/blue infrastructure in various urbanised regions in Europe. They can offer points of reference to policymakers who take structural measures to promote green and blue infrastructure.

PROCESS

In order to arrive at a series of recommendations for all the urbanised regions of the EU that want to implement green/blue infrastructure (an inspiration guide), diverse European urbanised regions were involved.

Step 1: call for and selection of experts (and regions)

Via the members of the PURPLE network (Peri-Urban Regions Platform and at network meetings (e.g. LIFE Platform on Ecosystem Services in May 2017) a mix of cases and experts was brought together and as broad a variation of regions as possible was involved.

The experts were selected, based on the registration forms, from the following areas: Euregio Maas-Rhine, Germany/the Netherlands /Belgium; South Moravian Regional Authority, Czech Republic; Città Metropolitana di Torino, Italy; Surrey County Council (near London), United Kingdom; Flanders, Belgium; PURPLE, EU (representing 12 peri-urban regions from different member states).

Step 2: preparing the experts workshop (homework for participants)

The experts were asked to persuade a panel from the European Commission to invest 5 million euros of European subsidies (for a fictitious project tender) in the improvement of the green infrastructure in their project area. They had to construct their 'business case' with clear arguments demonstrating the 'public' benefits and including an action plan explaining why their green infrastructure project deserved the funding. The aim of this assignment was to propose 'arguments' for investment in green and blue infrastructure in the cases. The experts were also asked to draw up a technical sheet for their project area.

Step 3: two-day expert workshop

Day 1

- introduction: what is green infrastructure? what is a peri-urban area?

- presentation of the six cases: why invest in green infrastructure in this project area? (elevator pitch)

- discussion of the arguments

- project visit to the demonstration sites in De Wijers

Day 2

-SWOT analysis of all the cases by having the participants analyse each case in small groups;

- outlines for policy recommendations: compilation of tips to push green infrastructure higher up the policy agenda (steps for creating an inspiration guide).

Step 4: drawing up an inspiration guide with cases from the expert meeting

Using the results from the expert workshop (presentation cases, SWOT analyses of the cases, interactive discussions, informal networking and site visit), an inspiration guide was drawn up with the 'lessons learned' from green infrastructure projects, programmes and plans of different peri-urban areas.

DID THE APPROACH PAY OFF?

An initial output of the process is the Inspiration Guide with green infrastructure programmes and plans in different peri-urban EU areas. It includes tips on communication, policy and administrative matters for the various levels (EU, national, regional), technical implementation, etc.

The projects from other countries provide inspiration for future developments in green infrastructure in new project areas.

The PURPLE network now also focuses on green/blue infrastructure as an important policy issue www.purple-eu.org

3.3 CREATIVE EXPERIMENTS WITH STUDENTS AND EXPERTS

Interdisciplinary summer school Curange-les Bains case - innovative long-term ideas

BACKGROUND

'Curange-les-Bains', a green space in the periphery of Hasselt was, at one time, 'the place to be' for residents of Hasselt who wanted to relax in green surroundings. Today this area has no real identity and has only a limited significance for local residents. Yet it forms an attractive green connection along the Demer which connects the city centre with surrounding areas of exceptional nature. The policymakers were also reluctant to invest in the green/blue infrastructure in the area. An intensive experiment was set up with students and experts in order to gather innovative creative ideas and to ignite the interest of policymakers and the residents in a low-threshold way.

PROCESS

Focusing on the various functions of green/blue infrastructure was seen as the key to pushing the green periphery higher on the agenda. To give shape to a multifunctional design, a far-reaching multi-disciplinary approach was chosen.

Preparation

From the start, Green4Grey took a multidisciplinary and participatory approach to the project. During workshops with various higher education institutions and experts, a summer school was developed and experts and academics from completely different disciplines were sought to support the students.

Team

A balanced team of twenty students from ten different areas of exact, applied and social sciences worked intensively together for one week. They were able to call in the expertise of some twenty experts and people who knew the area. The neighbourhood was also involved.

Summer school

After reconnoitring the site and becoming acquainted with the sensitivities and opportunities in the area from various thematic perspectives, the team set to work during an informal 'Café Curange' with area experts and residents. They particularly focused on finding a balance between the various functions in the area.

The way that different work forms, such as pioneering, inspiration workshops, visual harvesting, storytelling, idea mapping, food building, open space, etc. were deployed to foster creativity and cross-fertilisation between the various disciplines, plus a whole lot more, is included in the digi-brochure about the summer school.

The students developed five area proposals for the realisation of green/blue infrastructure in the short term and formulated innovative ideas for a green urban periphery in the long term. At the end of the week

they made their proposals tangible for policymakers, teachers and residents during the Buurtlab@Curange. The students entered creatively into a dialogue with the visitors to the neighbourhood lab who were thus given the opportunity to enrich the ideas or to come up with new ones.

DID THE APPROACH PAY OFF?

The summer school not only gathered a great deal of local area knowledge from a very broad perspective, but also formed a first step towards neighbourhood involvement. The Curange-les-Bains area was, as it were, put back on the map. The communication also attracted the attention of local policymakers. This experiment was followed up within higher education (via bachelor theses and graduation projects on the theme, a presentation as good practice in various forums, etc.).

The cross-fertilisation between the disciplines resulted in surprising ideas, such as the development of green infrastructure and agricultural areas from the perspective of care. Such innovative, creative ideas on green infrastructure in the periphery will become increasingly important in the future as a responce to social challenges such as urbanisation, climate change, ageing, etc.

Step 1

3.4 DEVELOPING BIODIVERSITY TOGETHER WITH INDUSTRY

Zellik Research Park Case - green corridor through industrial estate

BACKGROUND

In urban environments, many business estates and economic activities form a barrier in the landscape. Often, achieving green infrastructure only involves the development of government land using public investments. The potential of private land is under-exploited. Business leaders are generally not very aware of the socio-economic added value of ecological green space on and around their business estates.

The Zellik Research Park is located between two important green clusters, the Laarbeek Wood (Natura 2000) and the Kerremans Park. The agricultural area between the Research Park and the Laarbeek Forest will eventually be developed as open park landscape. To prevent the Zellik Research Park from becoming a grey barrier in a green landscape, a joint approach with key partners from the economic sectors was required.

PROCESS

The process in the Zellik Research Park focused on the following parties:

- the individual businesses which own the business estate;

- the park manager who coordinates the purchases and common interests of the companies, including the management of green space;

- the municipality which owns the public domain and is the authority which issues permits for new projects;

- the Flemish Agency for Innovation and Entrepreneurship (VLAIO) which owns the non-issued plots.

Step 1: drawing up and distributing the inspiration guide

The Inspiration Guide for ecological green space on business estates highlights the added value of ecological green and shows eleven inspiring realisations in Flanders and presents ten tips & tricks.

10 TIPS

1. Communicate the added value of green/blue infrastructure to other businesses and to customers.

2. Communicate within your business.

3. Collaborate with the government and other public partners.

4. Draw up a green plan and management plan according to the principles of 'Harmonic Park and Green Management'.

5. Add variation to the green infrastructure.

6. Collaborate with a green contractor with expertise in the field of ecological green-infrastructure management.

7. View biodiversity as a theme within corporate social responsibility.

Step 2

Step 2

8. Ecological management does not need to be expensive and can save costs.

9. Something is possible for every budget and type of business and business estate.

10. Ecological corporate greenery can have multiple functions.

Step 2: participation workshops and communication with the business sector

Business leaders and economic actors were made aware of and inspired by the added value of green space for their economic activity: wellbeing for employees, source of inspiration, cost reduction in adapted management, part of corporate social responsibility, etc.

To this end, awareness-raising nature safaris were organised about iconic species (such as the ring snake and orchids) and workshops were organised in which the wishes and the concerns of companies were addressed.

Step 3: drawing up a global vision for ecological green space creation and management of the Zellik Research Park

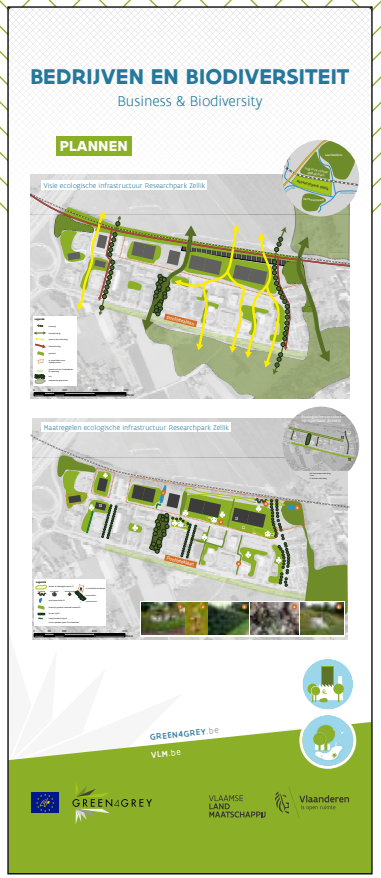
A vision for the future of the green infrastructure was drawn up with the aim of realising green corridors. In addition, a series of measures was developed to create a new habitat for valuable species, with water features, meadows with wildflowers, adapted mowing management, small landscape elements, indigenous species, green roofs, nesting boxes, insect hotels, etc. A division of tasks was worked out for the public domain (municipality of Asse), the allocated plots (existing businesses), the non-allocated plots (future businesses) and agreements made at the level of the entire business site (existing businesses). This new vision was presented by the VLAIO to all the businesses at the annual network event.

Step 4a: visits to individual businesses

All the businesses that showed interest were visited in order to explain the concept of ecological green space, including the specific opportunities for their business. The businesses were brought into contact with gardening and landscape experts who could develop ecological green space design and management on business sites based on the requirements and needs of the business (customer).

Step 4b: public investments in green infrastructure at Zellik Research Park

The superfluous road infrastructure on the industrial site was converted into green space (1 hectare has been converted). This will increase the water infiltration capacity in the strongly urbanised area. The expansion of the nearby Kerremans Park offers more opportunities for biodiversity. This makes the park more attractive and more accessible for employees and businesses on the Zellik Research Park.



Step 3

Step 5: from pilot project to broader support for biodiversity on business estates

The pilot project in Zellik and the experiences of Green4Grey were included in the consultation process that led to a new Green Deal entitled 'Business and Biodiversity'. A Green Deal is a voluntary agreement between (private) partners and the Flemish government to start a green project together.

Thanks to this Green Deal, 110 businesses, organisations and (local) authorities have already committed themselves to increasing biodiversity on their grounds in the coming three years. Around 1,250 hectares of business sites will be planted with permanent or temporary nature.

More info via:
www.lne.be/green-deal-bedrijven-en- biodiversiteit

DID THE APPROACH PAY OFF?

This broad approach encouraged private businesses and public authorities, defenders of economic interests, to think about green infrastructure. Managers have, for example, been made aware of the added value of green infrastructure for their economic activity for a variety of reasons: wellbeing for employees, source of inspiration, cost savings in the case of adapted management, component of corporate social responsibility, etc. In addition to the realisations, this could eventually lead to more green infrastructure developments on or near to private property and to the urbanised landscape being interlaced with green/blue elements. This project has always been based on voluntary commitment.

The first results of this project are:

- 1 ha of the total area of the industrial site (19 ha) was used for the expansion of the Park;

- the wooded corridor (c. 0.5 ha) was retained when drawing up an expansion plan for economic activities;

- an adapted mowing management on non-allocated plots for greater biodiversity;

- the identification of vulnerable zones for fauna and flora (visibility);

- advice on new development projects on non-allocated plots, adjustment of the concept idea towards an business site with ecological greenery and maximum preservation of the existing flora and fauna within the economic preconditions;

- a new construction of a corporate garden in a more ecological manner (including planting of fruit trees);

- the multiplier effect: this case was used as an example in the communications by the Minister of the Environment at the launch of the 'Green Deal'.

- The inspiration guide is an interesting communication product that is used to convince other business sites in the Flemish Belt and De Wijers, but also farther afield, of the role of ecological green space through actual success stories.

3.5 DESIGNS FOR AND BY CHILDREN

Raising awareness and investments tailored to children is investing in the future of open space

BACKGROUND

Children are an important link in the design of the open space in addressing the advancing 'greying' landscape; they are, after all, the future generation. Their view on open space and knowledge of its importance is still under construction, but it is crucial for the future. Participation programmes with children offer an excellent opportunity to raise awareness about environmental themes and nature. In addition, children are important users of the open space for recreation and can also have an impact on the way their parents perceive it. An additional advantage is that the enthusiasm of children can have a contagious effect on project initiators.

Participation of children requires a different approach than that for adults. When children are involved in the design, it is important to enquire about their wishes in a simple way and to focus on things that are relevant as viewed from their living environment. It is also possible to collaborate with representatives of children or adults with a pedagogical approach, such as designers of playground equipment, teachers, animators, etc.

And even when investments are made in the site, attractive 'doing' activities can stimulate the use of the new green infrastructure and raise awareness of it. Working with children is working with the future!

PROCESSES

Actively raising awareness and communicating: Children are involved in diverse activities

- Train the trainers: Teachers walk the nature learning trail (Kapittelbeek). At the entrance, they have an expert as a guide. The teachers then guide the children along the nature learning trail.

- Tree-planting campaign with school (Kapittelbeek): The children were allowed to plant trees for the new woods and hedgerows.

- Nature walk for children activity (Asse): The new Kerremanspark was opened with a walk for children along the new natural environment. In this way, the link was made between movement in nature and the importance of biodiversity.

- The children were involved in the communication material, such as creating the project film for Green-4Grey (Kapittelbeek).

- Tree frog safari (Dauteweyers) In a guided walk, families with children were introduced to the biotope requirements and hiding places of the rare tree frog. They then set out to search on their own with binoculars

- The IKEA play wood (Dauteweyers) was festively opened in the presence of the local youth.

Active participation: Children were involved in the design of play elements

- The children's mayor of Beersel was a member of the jury for the selection of the design of play elements. (Kapittelbeek)

- A group of committed children, together with the youth service of Beersel, was asked which type of activity they would like to do most in the future playground (e.g. climb ropes, swing or build). This formed the basis for the choice of the type of play elements and the detailing of the actual technical design. (Molenveek Valley)

Investments in green/blue infrastructure tailored to the needs of children

- Nature learning trail and play elements (Kapittelbeek)

- IKEA play wood (Dauteweyers)

- Nature playground (Zeen)

- Play element (Eenenboom)

- Play elements and football pitch in the Schansbroek neighbourhood park (Schansbroek)

DID THE APPROACH PAY OFF?

All the investments in play infrastructure are now actively used by children and have been positively assessed. Policymakers repeatedly featured campaigns with children in their communications, and this drew extra attention to the green infrastructure. The activity campaigns with children still provide an attractive opportunity to talk informally with local residents about the green infrastructure in the project areas. An informal questionnaire among the children showed that simple play elements (such as playing in the stream or balancing on old tree trunks) are often more popular than manufactured equipment. That is certainly something to consider in future designs.

4 THE RESULTS – GREEN/BLUE INFRASTRUCTURE ON SITE

This section sums up the infrastructural interventions for the six project areas and outlines the issues and the added value that the green/blue infrastructure works were intended to achieve.

4.1 TRANSFORMATION OF SIX PROJECT AREAS

The Flemish Belt


Kapittelbeek (Beersel)


Het Zeen, Eenenboom, Woluweveld,
de Burbure, Brongebied Wezembeek
(Zaventem, Kraainem, Wezembeek-Oppem)

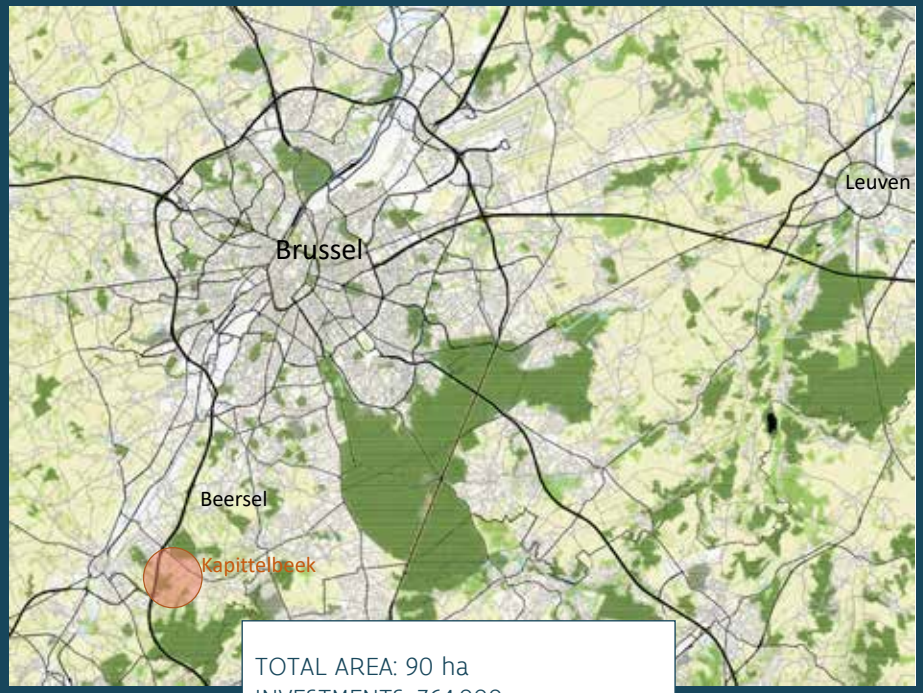

Kerremanspark en Researchpark Zellik (Asse)

De Wijers


Schansbroek (Genk)


Slagmolen (Genk)


Dauteweyers (Diepenbeek)



TOTAL AREA: 90 ha
INVESTMENTS: 764.000 euros,
(of which 217.000 euros LIFE subsidy)

The Flemish Belt - Kapittelbeek (Beersel)

PRIOR SITUATION

- during heavy rainfall, several village centres, residential districts and industrial areas downstream were flooded;

- the hard infrastructures prevent the stream from meandering;

- orchards which were historically a feature here have disappeared;

- the surroundings consist of a traditional residential development without much ecological added value and with considerable amounts of oversized asphalt and concrete;

- the Kapittelbeek has its source in the Haller Forest (Natura 2000) and contains species such as the brook lamprey, the brown trout, the chabot bullhead and the golden-ringed dragonfly; erosion from the adjacent fields threatens the water quality of the brook;

- the site has little recreational and no environmental added value.

ACHIEVEMENTS

Peri-urban/ suburban nature and biodiversity

- Areas (with spring water) reconnected with brook (x3)
- Planting of indigenous wood (0.61 ha) and hedgerow vegetation (0.12 ha)
- Linear hedgerows (800 m)

Water buffering and storage
Climate adaptation

- Concrete reservoir converted into ecological water body connected to watercourse (0.13 ha)
- Creation of natural flood zone (0.5 ha)

Water quality improvement

- Converting erosion-sensitive fields into extensive grassland (2.2 ha); less nutrient inflow as a result of extensive grassland

Sustainable food production

- Orchards (cherries and mixed fruit) (2.1 ha) and grazing by sheep

Greener living environment
Recreation/activities in the open space
Health and wellbeing

- Total area of recreation-friendly area (0.63 ha)
- Concrete surfaces converted into green squares (x8)
- Sown verges (6660 m^2)
- Large natural adventure playground with direct contact with water

Environmental education

- **Nature learning trail (2.2 km) with info signs with environmental education information (six stopping places)**

SOCIAL ADDED VALUE: CONTACT AND PLAYING IN NATURE

Issue

People in Flanders go outdoors less and less and largely live a sedentary life in artificial light. This should come as no surprise, as 21% of all the people of Flanders has no access to neighbourhood or district greenery. That figure is much higher in the city and the suburbs. It is an important social challenge to change this

Availability of local green areas for the Flemish Population Green= access to local green areas
Orange= no access to local green areas

Source: Flanders Spatial Report, 2016

Nature-Deficit Disorder is an umbrella term that refers to the disappearance of nature experiences in everyday life. Too little contact with nature results in physical and psychological complaints, such as loss of concentration, burnout, obesity, stress and depressive feelings. The Nature-Deficit Disorder was described for the first time by Richard Louv in his publication 'Last Child in the Woods'. Louv explains how parents, teachers and spatial designers can improve the contact between children and nature. The author warns of the consequences for society if children cannot play and come into contact with real nature. This is a big risk, especially for children in an urban environment, since many play elements are artificial.

Opportunities for contact with 'real' nature

By making the remaining green elements more natural, expanding them and incorporating additional adventurous playing experiences, contact with nature can also be restored in urban environments. For children raised in an urban environment, where the distances to large wood and nature complexes are sometimes considerable, the local open space is often their first contact with nature. 'Contact with water' is only possible if sufficient guarantees have been built in with regard to water quality. This is often a major challenge in urban environments where sewage water ends up in the waterways.

Contact with nature can also play a big role in raising awareness and education about the environment, and can eventually lead to behavioural changes in tomorrow's generation.

> "Nature near the school is the ideal place to learn; what's learnt in the cradle lasts to the grave"
>
> (Nele Belsack, director Beersel primary school)

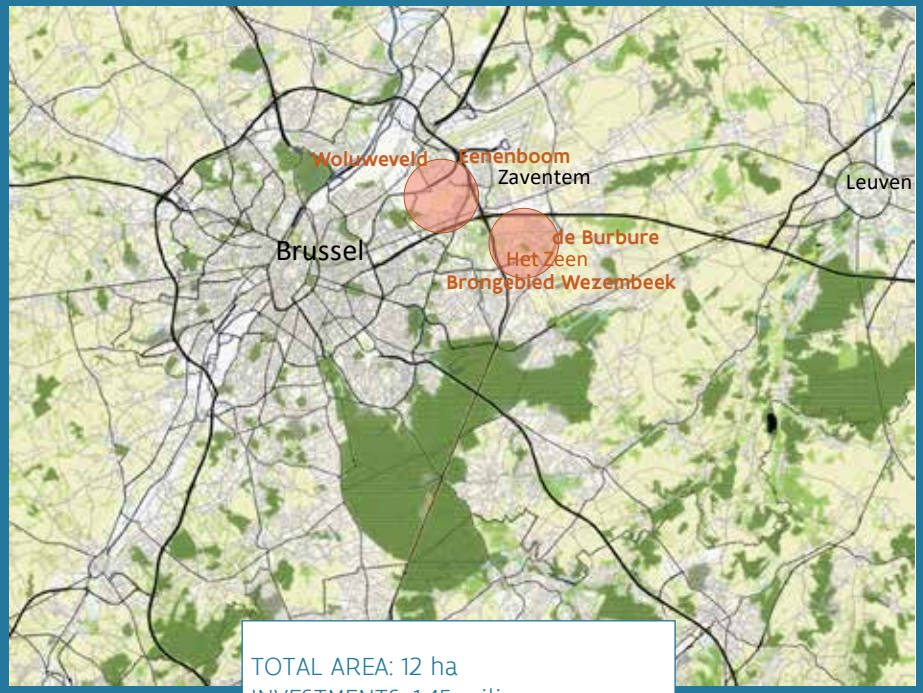
CONTACT AND PLAYING IN NATURE: Achievements in the Kapittelbeek

Attractive information boards with a familiar character (the Red Knight) guide the pupils along the nature learning trail, which brings them into contact with the various fauna and flora of the ecosystem (birds, insects, reptiles, etc.)

Facilities where direct contact with water and playing in a brook is once again possible in an urbanised environment

Converting concrete reservoir into a pool where children can see amphibians up close

Fruit orchards and bee hotels make the link between pollination and food production. The ripe fruit can be picked freely and a 'fruit indicator' explains the various fruits in a light-hearted way



TOTAL AREA: 12 ha
INVESTMENTS: 1,45 miljoen euros,
(of which 278.000 euros LIFE subsidy)

Het Zeen, Eenenboom, Woluweveld, the Burbure, Wezembeek source area (Zaventem, Kraainem, Wezembeek-Oppem)

PRIOR SITUATION

- strong degree of sealing of the ground through infrastructure and buildings, with little space for infiltration of water into the soil (and therefore risk of flooding);

- risk of even more floods in the future through increasing building pressure combined with the effects of climate change;

- decrease in the biodiversity in the urbanised environment through open spaces that serve as habitats for indigenous fauna and flora;

- an urban population that still has little contact with natural open water and nature;

- insufficient and sub-standard walking and recreational infrastructure.

ACHIEVEMENTS

Peri-urban/ suburban nature and biodiversity

- Mixed planting of native shrubs and trees (0.3 ha or 450 plants)
- Insect park with native shrubs on former landfill (1 ha)
- Bee and insect hotel (on 2 sites)
- Fruit trees (0.26 ha)
- Two separate park zones form a whole (4.3 ha) thanks to removal of road infrastructure

Greener living environment

- Natural environments in urban surroundings
- Expansion of park area: breaking up concrete and asphalt (4000 m^2)

Recreation and activities in the open space Health and wellbeing

- Play elements and adventure playground and play elements in the water (at 2 sites)
- Path infrastructure (1300 m of jogging paths and 1900 m walking trails at 3 sites) and recreational infrastructure (benches, bridges)

Environmental education

- Information boards with environmental education

Water buffering and storage - Climate adaptation - Water quality improvement

- **New brook, open watercourse originally underground in pipe infrastructure (430 m on 2 sites): clean spring water no longer flows directly into the sewage system**
- **Wadis (0.6 ha at 2 strategic locations)**
- **Open water zones along the brook (0.25 ha)**
- **Additional natural water infiltration zone: removal of hard surfacing (0.25 ha)**

SOCIAL ADDED VALUE: CLIMATE ADAPTATION MEASURES, DEALING WITH FLOODING IN URBAN ENVIRONMENTS

Issue

The flood risk has increased approximately fivefold in the past 50 years, both in Flanders and in the rest of Europe. In the last 25 years, around 5% of the total surface area of Flanders has flooded. In urban environments, the chance of flooding is particularly great because of the big percentage of concretisation (residential, road infrastructure, parking lots, industrial sites, etc.). Nowhere can the water permeate through into the soil and rapidly flows into the waterways. Climate change increases the chance of flooding. In Flanders, 14% of the soil is sealed over (among the highest in the EU). Yet one square metre of unpaved soil can absorb three bathtubs of water a year.

Effective nature-based measures to reduce flood risk

In the fight against flooding, source-focused measures play an important role. By collecting rainwater as much as possible where it falls and allowing it to infiltrate the soil, both on private and public property, this water flows less rapidly into the waterways. That decreases the chance of flooding downstream. In addition, water can be slowed down by a more natural waterway profile, or temporarily stored in naturally constructed flood zones.

The following measures will significantly reduce the risk of flooding:

a) Increasing the infiltration capacity by removing hard surfacing

Existing paved areas or excessively large hard infrastructure can be literally perforated by breaking open some sections of the paved surface and creating new 'open space or infiltration space'. New infrastructure projects must increasingly take into account the options for making maximum use of rainwater infiltration.

b) Temporary retention of water in natural flood areas

In the past, investments were made in water security through storing water in concrete basins and technical solutions such as dikes. These technical solutions offer little added value for either the landscape or ecology. A more naturally constructed flood zone is not only a cheaper form of water storage, it also increases the self-cleansing capacity, offers opportunities for nature development and the restoration of wet nature and biodiversity. Moreover, these flood areas can also be converted into new attractive landscapes, where it is pleasant to relax and exercise.

c) Allow precipitation and spring water to flow above ground

In (sub)urban environments, clean water (precipitation and local spring water) often flows directly underground into the sewers. This causes unnecessary taxing of the sewage system. By allowing this water to flow into open beds above ground, areas can be created for recreation, experience, water-linked biodiversity and so on.

"Nature-based solutions for storage and infiltration of water are an important key to tackling flooding, the loss of biodiversity and the decrease of recreational possibilities in urban environments."

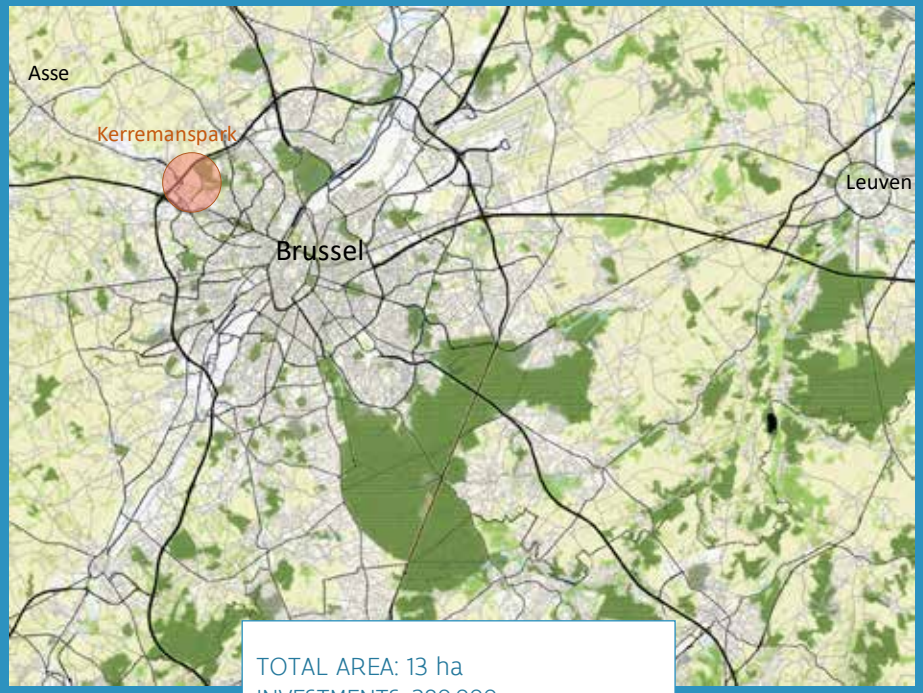
(François Delcueillerie,
LIFE Unit, European Commission)

CLIMATE ADAPTATION MEASURES: Achievements in Het Zeen & Eenenboom

Increase of the infiltration capacity for rain water in the soil by breaking up superfluous hard surfacing (superfluous street infrastructure). LEFT: before landscape development - RIGHT: after landscape development

Temporarily storing water in natural buffers such as wadis

Collect spring and rainwater in attractive open water areas



TOTAL AREA: 13 ha
INVESTMENTS: 380.000 euros
(of which 112.000 euros LIFE subsidy)

Kerremanspark and Zellik Research park (Asse)

PRIOR SITUATION

- a decline in biodiversity in this urbanised environment;

- the landscape was strongly intersected by road infrastructure, which meant that green and open space areas were not connected to each other;

- many workers and residents live in an urban environment, with noise, traffic and pollution and have few opportunities to relax in quiet and green open spaces in the vicinity.

ACHIEVEMENTS

Peri-urban/suburban nature and biodiversity
Climate adaptation

- Wet grasslands (0.4 ha), 'dry' grasslands (0.3 ha), rough growth (0.6 ha), farmland bird fields (0.2 ha) on former pastures and fields
- Extra forested area (1.3 ha)
- Solitary trees (50 specimens)
- Transition vegetation (hedgerow) (0.5 ha)
- White Admiral wall
- Two pools for amphibians
- Greater connectivity between green structures

Greener business sites - Environmental education - Recreation and activities in the open space - Health and wellbeing

- **Breaking up concrete infrastructure to the benefit of park expansion (1 ha Pontbeeklaan) ***
- **Path infrastructure (1.6 km) with duckboard path (160 m) and benches...**
- **Global long-term vision for ecological green-space creation and management of the Zellik Research Park.**
- **Four site campaigns for more biodiversity on industrial sites and more than fifty businesses contacted and made aware of green ecology (also outside project area)**

*(extra, no subsidies Green4Grey)

SOCIAL ADDED VALUE: LANDSCAPE CORRIDORS AND STEPPING STONES IN FRAGMENTED SUBURBS ON PUBLIC AND PRIVATE PROPERTY

Issue

In urban environments, the remaining green areas have often arisen through fragmentation of the open space for the creation of transport infrastructure, for economic developments and ribbon development (the grey infrastructure).

A network can be formed by linking and expanding the remaining green areas and by providing an interlacing network in the grey infrastructure. This can be done in various ways, via ecoducts, landscape bridges, green corridors, ecological verges, conversion of conventional greenery in parks into ecological greenery, etc. These landscape corridors in public areas are becoming increasingly common. In a city environment, however, much land use is private. For many public owners, the creation of ecological green space is not their core business (e,g, public owners of business estates).

In order to develop a fully-fledged green/blue infrastructure, the aim must be to create a veining through the existing grey infrastructure, even in less obvious locations, such as industrial sites, private gardens, etc.

Landscape corridors through business sites and communal parts of business districts: benefits for businesses, residents and ecology

Green veining is attractive for businesses and employees. Existing and new greenery can be arranged in an ecological way with attention for indigenous species, small landscape elements and gradual transitions between biotopes.

Various studies show that greenery improves the physical and mental health of employees. Employees remain more motivated and are less frequently sick. If there is less sickness absence, productivity and the economy improve. Greenery can be a decisive factor for a business to locate or for attracting the right profiles.

Green veining with an adapted infrastructure for soft mobility can provide green lungs in landscapes that are busy, congested, noisy and polluted.

More ecological greenery in and around private gardens offers a potential reinforcement of the green infrastructure. A network of biodiversity-friendly landscaped gardens (such as meadows with wildflowers, extensive garden management with native plants, etc.) in an urban environment can form the missing link with public elements of the green infrastructure.

> "The common efforts and activities to create more biodiversity on the business site have resulted in a form of community-building which leads to more cooperation between companies. A win-win for nature and businesses"
>
> (Flemish Agency Innovation and Entrepreneurship & President of Research Park Zelli)

LANDSCAPE CORRIDORS AND GREEN STEPPING STONES: Vision for the area around Kerremanspark

Vision for the development of a landscape corridor to the north-west of Brussels (Zellik Region, Asse):
Green landscape elements (Laarbeek Forest Natura 2000, Kerremans Park, open space to the north of the ring motorway) are intersected by grey elements from the urbanised landscape such as the urban expansion (from Brussels), business site (Zellik Research Park) and traffic infrastructure (Brussels Ring).
Through smart interventions in the grey infrastructure, the connectivity can be restored by creating a green/blue veining of the industrial site and with a landscape bridge that relieves the barrier of the motorway.

Source: Metropolitan Landscapes

LANDSCHAPSCORRIDORS AND STEPPING STONES: Achievements in the Kerremanspark

Transformation of former wet meadows into pools for amphibians creates an ecological stepping stone

Planting new forested areas, constructing pools, , creating grassland and scrub on former agricultural land in an urban environment

Transformation of a former dumping-ground into a new forest next to a business site

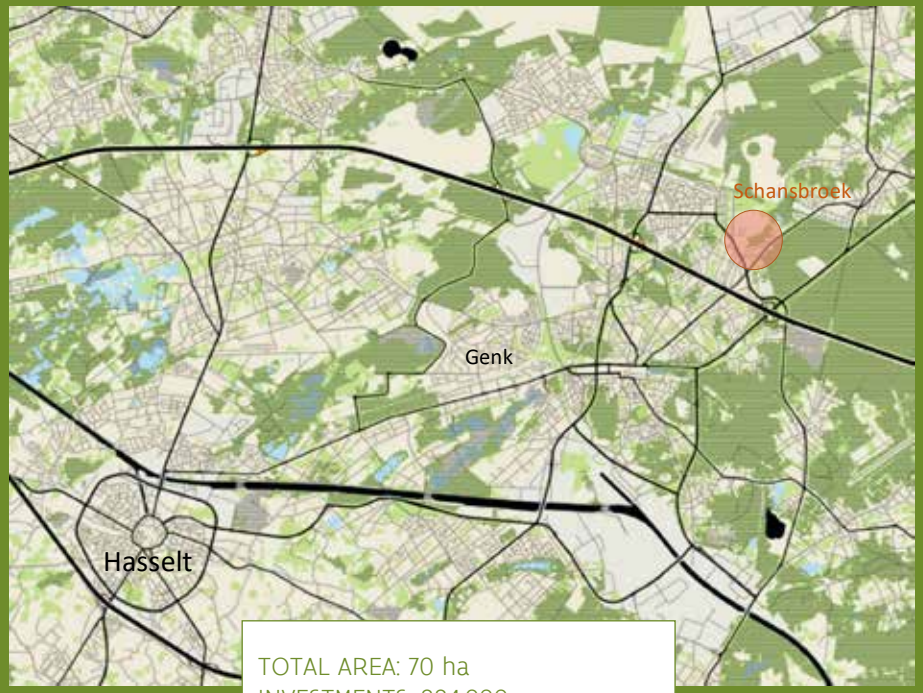
Ecological stepping stones create a green oasis for workers and residents in the suburbs

LANDSCAPE CORRIDORS AND GREEN STEPPING STONES: Achievements on the business site Zellik

Conversion of the superfluous concrete lane (grey) with an expansion of the park area with new vegetation (green) and the construction of a bicycle path for CO2-neutral commuter traffic. Small Picture: before landscape development - Large Picture: after landscape development

Development of private business sites with new vegetation including

Green/blue veining of the business site: retention of an ecological forest corridor between two companies (left)



TOTAL AREA: 70 ha
INVESTMENTS: 884.000 euros
(of which 141.000 euros LIFE subsidy)

De Wijers - Schansbroek (Genk)

PRIOR SITUATION

- The water management had been completely disrupted by the former mining industry.

- The source area of the Stiemerbeek [Stiemer Brook] could no longer drain naturally and the water had to be pumped continuously.

- On the one hand, the lowered water level has disrupted the valley's eco-system, on the other the poor local drainage causes flooding for local residents.

- The surroundings are deserted and are avoided by local residents because of a feeling of insecurity, problems with litter, petty crime, etc.

- There are no recreational facilities for local residents and the employees of the adjacent industrial site, with the exception of a football pitch.

ACHIEVEMENTS

Peri-urban/ suburban nature and biodiversity

- Higher groundwater table in nature reserve, thanks to uprooted vegetation and restoration of Hornszeevijver overflow construction.
- Unwanted vegetation has been removed and wetland types have been restored.
- Three pools or ponds (habitat type 3130)

Water buffering and storage

- 2700 m^2 natural water storage

Sustainable food production

- New allotment garden complex with twenty allotments and central storage space, picnic tables, petanque court*

Climate adaptation

- The source of the Stiemerbeek is no longer pumped directly and the raised groundwater level in the area helps to prevent dehydration

Recreation and activities in the open space - Greener living environment - Health and wellbeing - Greener industrial sites

- **Neighbourhood park with 35 ha of park infrastructure**
- **Five picnic spots**
- **1400 m walking paths, missing link in bicycle infrastructure***
- **Play hill and play meadow***
- **Redeveloped historic earthwork with 200m redeveloped earthwork canal**
- **Redeveloped football pitch***

*(extra, no subsidies Green4Grey)

SOCIAL ADDED VALUE: FROM RECREATION TO SOCIAL COHESION

Issue

In an increasingly individualistic society, problems such as loneliness, lack of social involvement and community life are on the increase. The social cohesion or 'adhesive strength' in society is under pressure. The quality of life in the neighbourhood and the wellbeing of individuals are deteriorating.

Open space as meeting place

Social cohesion is a challenge for all the policy areas. Creating public green/blue infrastructure, certainly in the city and the suburbs, can boost cohesion. Attractive open spaces where there is something to see and experience invite people (of different generations) to come outdoors and enourage meetups. In multicultural urban environments, too, communal open space can provide a meeting place for different cultures and create a new social dynamic.

Stimulating social cohesion by focusing on open space means more than investing in footpaths, vegetable patches and playgrounds. The route to achieving this is certainly just as important. Chapter 3.1 demonstrated how by actively involving future users in the design, spatial capacity building is increased and community involvement and commitment are created.

> "In the past, Schansbroek had its problems, such as petty crime. Today, the neighbourhood park brings ambience into the area and encourages local residents who previously stayed away to come outside and have a chat."
>
> Wim Dries, mayor of Genk

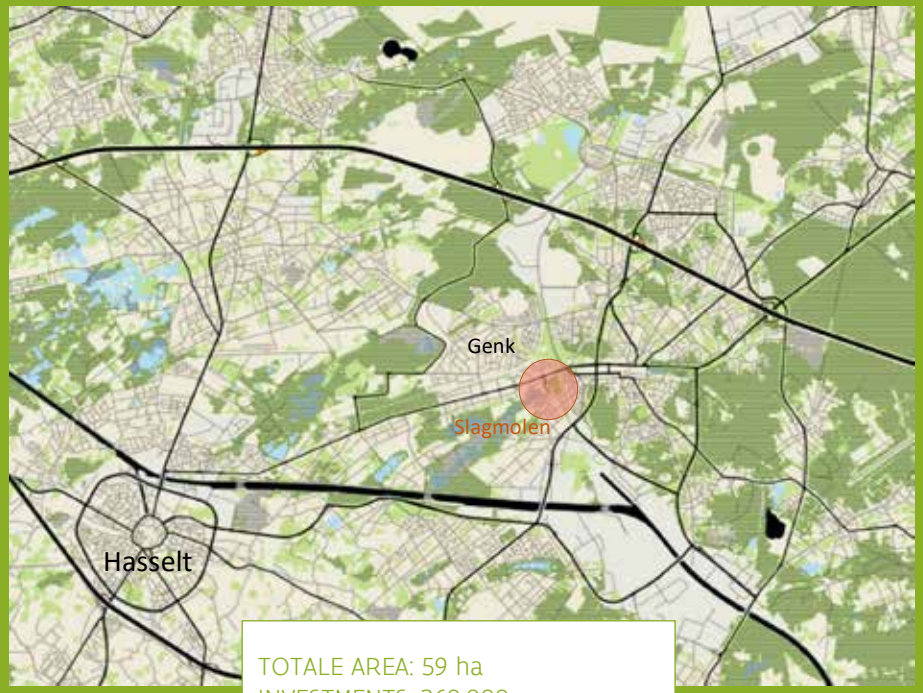
RECREATION AND SOCIAL COHESION: Achievements in Schansbroek

A community feeling has arisen and immigrant and indigenous local residents come into contact with each other more

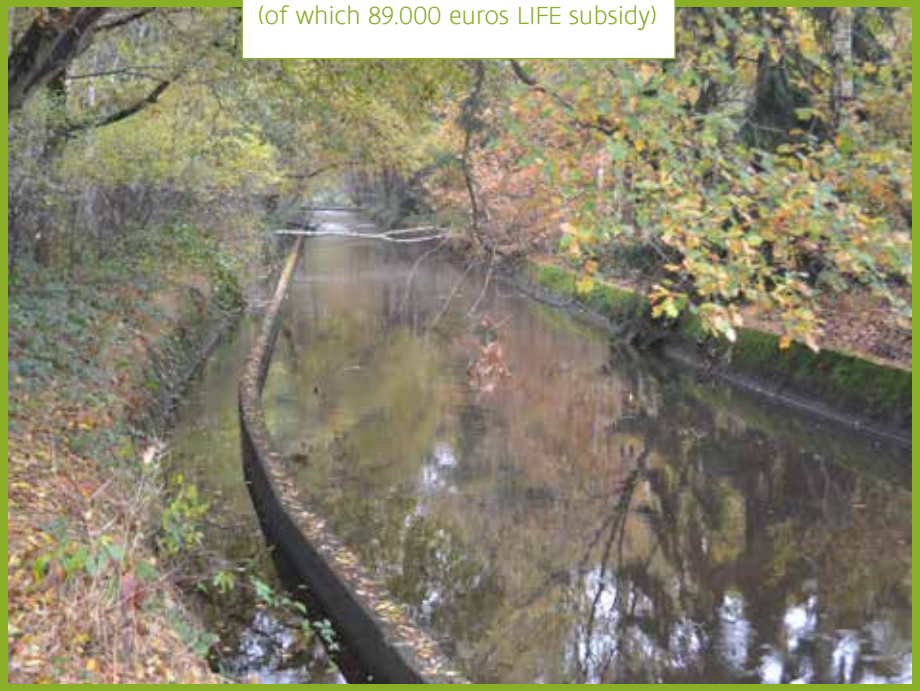
Even before the works in the Schansbroek neighbourhood park were completed, it was being used intensively by local children

Local residents working together in the new vegetable gardens

Local residents and users of the local service centre show the designers what their expectations are for the neighbourhood park



TOTALE AREA: 59 ha
INVESTMENTS: 260.000 euros
(of which 89.000 euros LIFE subsidy)



Slagmolen (Genk)

PRIOR SITUATION

- The Schabeek [Scha Brook], the waterway that feeds the ponds in the De Maten nature reserve (Natura 2000), flows together with the Stiemerbeek [Stiemer Brook] through a shared bed. The Stiemerbeek runs right through the city centre of Genk and, thanks to a record number of sewer overflows in heavy rainfall, has quite a lot of wastewater to handle.

- The polluted sewage in the stream threatens the fauna and flora of the unique pond system in the nature reserve De Maten (Natura 2000).

- De Maten is in walking distance of the centre of Genk, but there are no bicycle or walking paths that connect them with each other.

- The historic watermill, a listed monument, has little appeal due to the surrounding messy landscape.

- The surroundings are hardly enticing and attract few local residents or passersby.

ACHIEVEMENTS

Peri-urban/suburban nature and biodiversity

- Controlling exotics 550 m² of Japanese knotweed has been removed and 58,000 m of land has been cleared of bird cherry plants
- 130 m of hedgerow has been created with potential for butterflies such as the White Admiral, which is typical for the habitat of De Maten.
- Six amphibian excursion points on the Dorpsbeek and the Stiemerbeek
- The concrete partition construction has been removed at five locations over a distance of 4 m

Water buffering and storage

- The Schabeek has been freed of its concrete straitjacket and now meanders freely through the Elzenbroek Wood over a length of 415 m.
- Measures against flooding in the gardens of local residents (215 m dike and 250 m canal)

Greener living environment
Recreation and activities in the open space
Health and wellbeing

- New adventure footpath connection between De Maten and the city centre of Genk (150m corduroy path through the wet woodland and 475 m walking path in wood shingles through the dry sections)
- Mobility path (2500 m²) through De Maten
- Planned redevelopment of Slagmolenplein and surroundings with space for meeting, playing, education, etc.

Water quality improvement

- **The water supply to De Maten (Schabeek) has been disconnected from the Stiemerbeek, which has become polluted by overflows**
- **Control system for smart feeding of the ponds in De Maten***
- **A new purifying through-flow marsh of 7500 m²**

*(extra, no subsidies Green4Grey)

SOCIAL ADDED VALUE: PROTECTION OF NATURA 2000 THROUGH INTERVENTIONS IN THE VICINITY

Issue

In the European suburban areas, the nature hotspots (such as Natura 2000 areas) are often surrounded by urban infrastructure. That infrastructure is a potential threat to nature values. For the protection and development of this exceptional nature, investments in nature development and management logically often focus on that nature itself. Without investments at the source of urban pollution, this is futile.

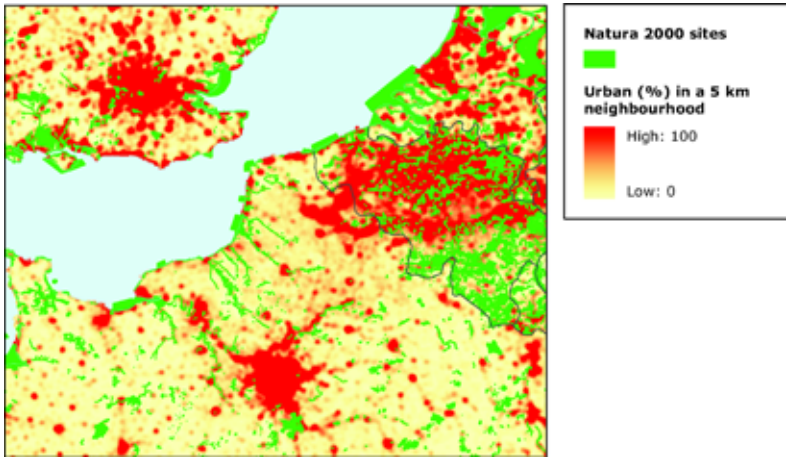
A typical example is the problem of flooding in an urban context, whereby nutrients from the sewerage system threaten the water quality and water-dependent fauna and flora in neighbouring nature reserves.

Tackling environmental pressure in the vicinity of Natura 2000: the key to success

Green4Grey argues for investments in the 'grey' spaces between the city and the large nature areas. With a valley-wide vision for the sewerage problems (see chapter 4.2) and targeted, relatively small interventions in the water management in the Slagmolen project area (see section 4.1.1.2), the added value and the necessity is demonstrated of targeted investments outside Natura 200 in order to reduce the pressure on these areas.

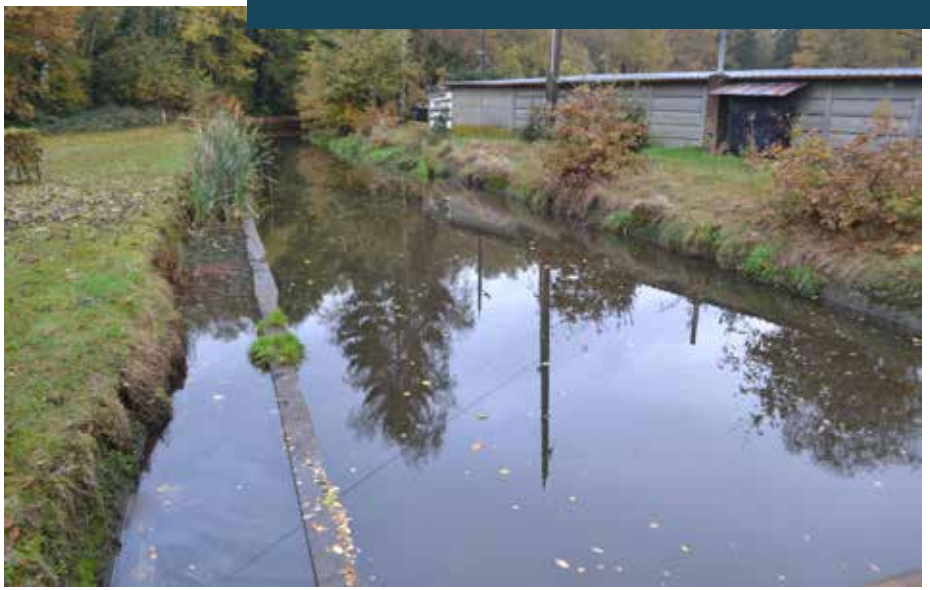
"Ecological progress often depends on good water quality. Unfortunately, improving water quality is a long-term task and many partners are involved. With targeted interventions, a maximum effect can be sought in the short term."

"Monitoring team ecology & hydrology
GREEN4GREY,
FLEMISH LAND AGENCY"



Impact of urbanisation on Natura 2000 sites, European Environmental Agency, 2010.

PROTECTING THE SURROUNDINGS OF NATURA 2000: Achievements in Slagmolen

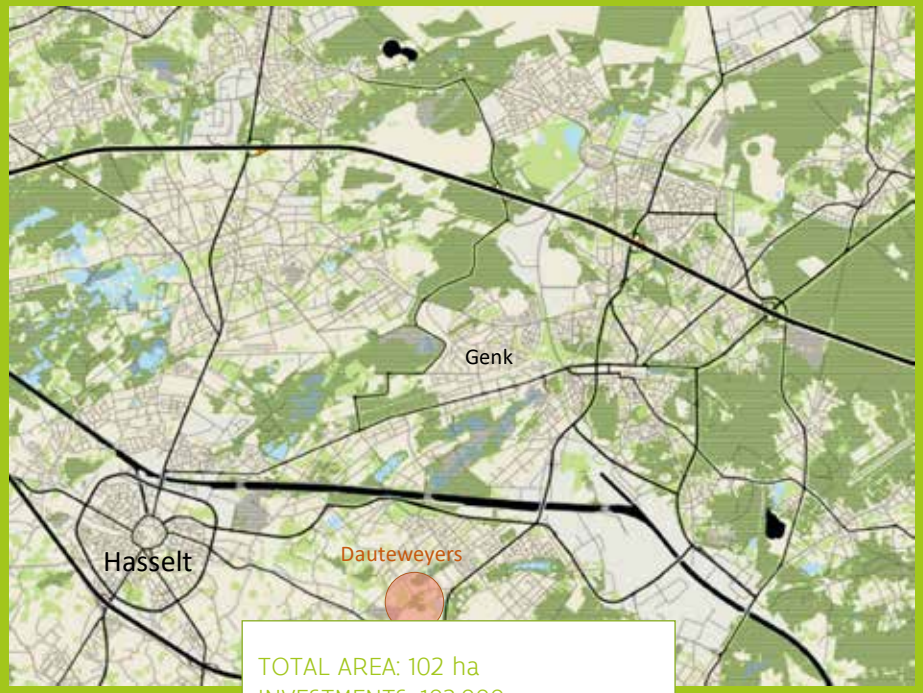


The Schabeek (left) mainly fed by spring water and streaming into the Natura 2000 area 'De Maten' has been disconnected from the Stiemerbeek (right), that is highly contaminated during overflow of sewerage

The Stiemerbeek (with low water quality) streaming next to a former water mill

The Schabeek has, for parts, been given a meandering bedding and is partly designed as a purifying through-flow marsh, which allows for better water quality for the downstream Natura 2000 area 'De Maten'

View of the unique pond cascade system of the Natura 2000 area 'De Maten' near the Slagmolen project area, a stone's throw from the centre of Genk



TOTAL AREA: 102 ha
INVESTMENTS: 103.000 euros
(of which 52.000 euros LIFE subsidy)

Dauteweyers (Diepenbeek)

PRIOR SITUATION

- The ponds in the nature area form a potentially ideal habitat for the rare common tree frog and other amphibians.

- The living conditions, however, such as pond water level management, the water quality and the land biotope, are not ideal for the common tree frog.

- Dauteweyers is completely enclosed by residential areas, but few local residents know the unique natural beauty in their backyard. Recreative routes are rather limited.

ACHIEVEMENTS

Water buffering and storage
Climate adaptation

- Old useless constructions removed from the Dautenbeek
- Optimised inlets and outlets between ponds and watercourse and overflow between the ponds
- Thanks to improved knowledge of the hydrology of the area, the focus will be better directed on the expected changes in the water system due to climate change (longer periods of drought and heavy rainfall)

Environmental education
Health and wellbeing
Recreation and activities in the open space
Greener living environment

- Design of a common tree frog safari trail *
- Creation of a play wood*
- Walking infrastructure: 50 m corduroy path, 80 m walking path, 1 bridge
- Clearance of obsolete infrastructure
- Local residents were made aware of the unique value of the nature reserve in their backyard through communications, information folders and walking

Peri-urban/suburban nature and biodiversity

- **Land and water biotope for the common tree frog was developed by:**
  - **the removal of 24,000 m² of undesirable vegetation and trees on the banks and islands**
  - **5,250 m² of vegetation thinning in the area around the ponds**
  - **2,000 m reprofiled banks**
  - **30,000 m² of earth moved**
  - **6 cleared pools and 2 additional pools**

*(extra, no subsidies Green4Grey)

SOCIAL ADDED VALUE: SPECIES CONSERVATION AS THE BASIS OF NATURE DESIGN

Issue

In Flanders there are about forty thousand animal species. Specific measures for every species is not feasible. The species policy in Flanders exists within an international context. The European targets and obligations (Natura 2000) are fixed. The member states decide for themselves how they want to reach these targets. The Natura 2000 policy in Flanders is a top priority, but not all the needs for habitats and species in Flanders are covered by this. Additional efforts and initiatives remain necessary. Starting from species and their habitats, incentives and protective measures must be taken to achieve a more robust and high-quality nature environment, in which core areas are linked via intervening landscapes with a basic environmental quality.

Symbol species as heralds of a natural landscape

Threatened iconic species are concrete and ideal symbols for setting targets and developing suitable measures for nature development. They allow habitats to be tackled in a structural way by basing abiotic and spatial conditions for nature development on the demands made by these species. At the same time, opportunities are created for other species to piggyback. The species can, moreover, mobilise partners into collaborating. By focusing on these species, such as the common tree frog, cuddly or not so cuddly, support is created for nature development and biodiversity.

"Around the turn of the century, things were looking bad for the rare common tree frogs in Flanders. In the Dauteweyers, only two calling males were counted. Thanks to targeted efforts, the common tree frog again feels completely at home in the Dauteweyers, and in the spring, 560 calling males could be heard. Hopefully, the neighbourhood's interest will also increase exponentially."

Jos Ramaekers, Natuurpunt

SPECIES CONSERVATION: Achievements in Dauteweyers

The common tree frog is a choosy creature which was common in De Wijers. The pond management for fish farming, such as a periodic drying out of the ponds, ensured an appropriate habitat

The tree frog in his natural land habitat (bramble bushes)

Visitors can enjoy the open landscape by taking new walking routes

Nowadays the tree frog needs help. Conservation measures, such as reprofiling riparian zones, sunlit bushes along ponds,... create new habitat opportunities for the tree frog in the Dauteweyers

4.2 VISION DEVELOPMENT AT VALLEY LEVEL

In addition to the multifunctional design of six project areas, Green4Grey has also drawn up an integrated plan at landscape level for two valleys:

- the Molenbeek valley in the municipalities of Sint-Genesius-Rode, Alsemberg, Dworp, Huizingen and Lot and the industrial areas at the lower reaches;

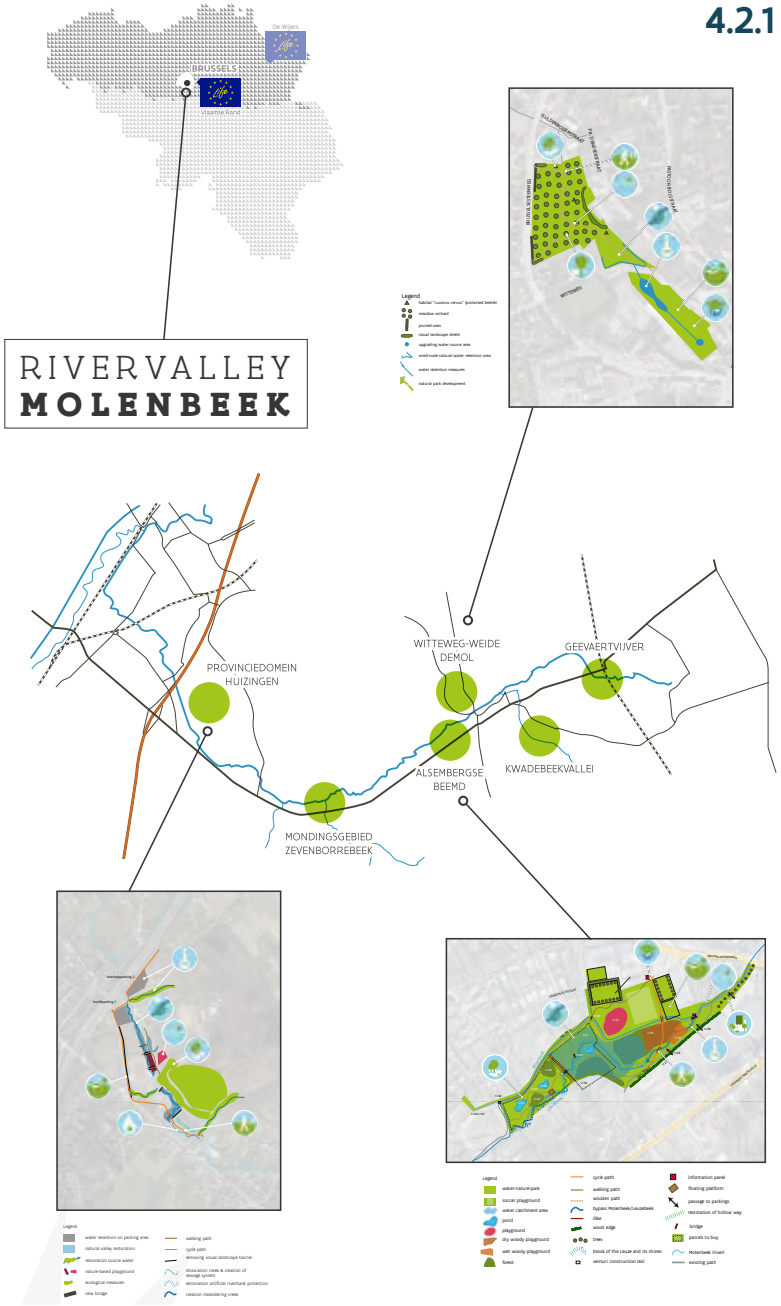
- the Stiemerbeek valley through the centre of Genk.

These plans contain a long-term vision for green/blue infrastructure on a larger spatial scale.

Why is it necessary to have a vision at valley level?

First, Green4Grey not only wants to show best practices in the six project areas, but also create a 'domino effect'. After their conclusion, Green4Grey wants to encourage others to take part in new integrated projects for green/blue infrastructure.

Secondly, an overarching vision at valley level is necessary to address major social challenges, such as climate change, water management, biodiversity and the connectivity of nature areas, etc. for which local interventions in isolated places in the suburbs are no longer sufficient.



1 longterm vision at landscape and valley level

4.2.1 Molenbeek Valley Case

An answer to the challenges of climate change in urbanised environments

Climate change means that landscapes must become more and more resilient. Valleys with a strong anthropogenic influence due to a strong increase of the built area are at risk from climate problems (heavier rainfall, heat islands, drought, migration of species). These problems do not stop at municipal borders and demand an approach on a bigger scale.

In the vision for the Molenbeek valley for the next twenty years, 'blue' and 'green' infrastructures are focal points within an integrated approach to other problem areas (such as recreation, soft mobility, etc.). The Molenbeek valley is also the link between two large Natura 2000 area complexes (The Sonian Forest, the Hallerbos and the Valley of the Zenne).

Molenbeek Valley as 'blue' corridor

The sharp increase in hard surfaces in the catchment area means less infiltration at the level of the valley walls and plains, and water flows faster into the Molenbeek with elevated flow rates, flooding and damage to buildings and infrastructure as a result. It is to be expected that this problem will increase in view of global warming and the increasing sealing of the soil.

The natural state of the Molenbeek has been affected by straightenings, pipelines, hard bank defences and encroachment of the riparian zones. As a result, the length of stretches where natural meandering with erosion and sedimentation is still possible is very limited. An additional effect of this is that the buffer capacity of the watercourse has decreased and the stream has faster drainage than a naturally meandering winter bed.

Solution-driven initiatives for the Molenbeek basin

Firstly, work must be done on optimal buffering and delayed discharge on the plateaus and valley walls in this area by constructing new pools and buffer basins (naturally constructed, no hard structures).

Secondly, the natural buffering capacity of the valley (winter, natural flooded areas) must be safeguarded.

Thirdly, the buffering in the Molenbeek and its tributaries must increase the optimisation of the buffer capacity in the valley (winter bed) and develop and activate new buffer areas (no hard construction). Since the buffering of superfluous water is only required for a very limited time

period, the function of flood area or buffer can in some cases by combined with other functions (water plaza, water zone, playground, etc.).

Finally, precipitation on built-up plots can be buffered locally and infiltrate the built-up plots.

Molenbeek Valley as 'green' corridor

Within the current spatial configuration of fragmented open spaces around urbanised areas, spontaneous migration and settlement between sub-areas of the nature and habitat directive is excluded for many target species. In the context of climate adaptation and biodiversity issues, the construction of corridors between nature areas is thus of essential importance.

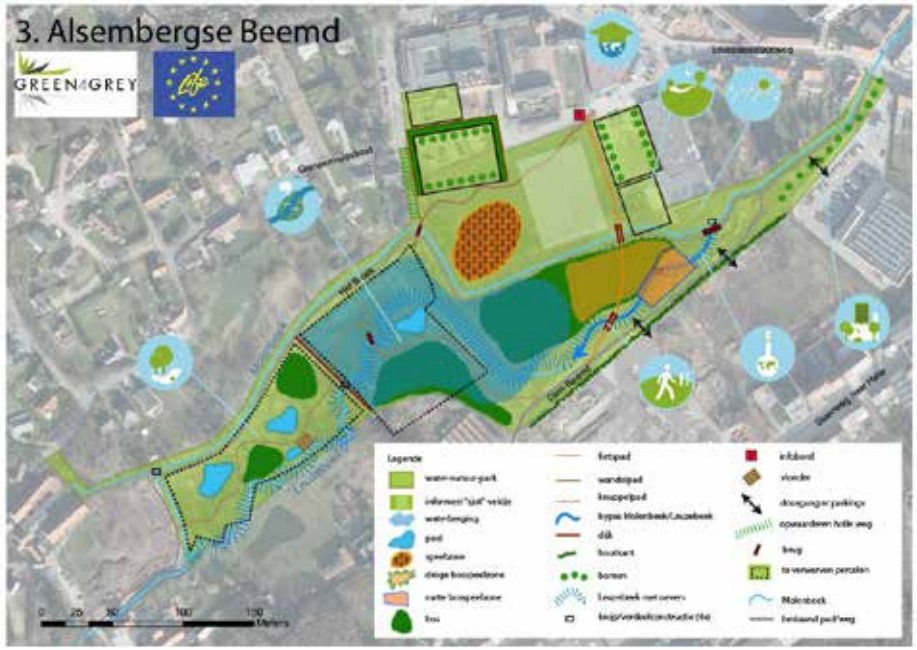
Solution-driven initiatives for the Molenbeek basin

The natural linking function of the Molenbeek will be strengthened as part of an ecological structure that connects the Sonian Forest on the one hand and the Zenne Valley on the other.

From an ecological point of view, the integrity and coherence of the Molenbeek Valley, including the sources and estuaries of the many tributaries, must be restored. To achieve this, the interventions may not be limited to the brook bed and bank, but attention must also be given to the appropriate use and ecological design of the adjacent valley ground.

Integrated green/blue layout in the Molenbeek Valley from landscape level to site level:
- vision at valley and landscape level (figure 1)
- integrated design at site level (figure 2)
- visualisation of site level sub-area (figure 3)

2 integrated design of the area at site level



3 visualisation of sub-area at site level

4.2.2 Stiemerbeek Valley Case

A valley-wide integrated approach for a more resilient water and sewage system

Just as in large parts of Flanders, the sewerage system of Genk today falls far short of what is required. In the upstream section through the city centre of Genk, the Stiemer flows in a concrete bed, enclosed on both sides by sewer collectors in the embankments. These collectors have no less than 27 overflows, pouring polluted sewerage water directly into the Stiemer. This rapidly discharges water in the direction of De Maten nature reserve, where it poses a threat to the European protected fauna and flora of this unique pond system.

The water quality cannot be improved by a few targeted interventions, but demands a valley-wide long-term approach whereby the whole water and sewerage system needs to be reviewed. Various actors must rally behind this. With this philosophy in mind, a master plan has been drawn up for the entire Stiemerbeek Valley, in which not only the water system but also the themes of ecology, soft connections between strategic urban sites and the activation of a public culture have been integrated.

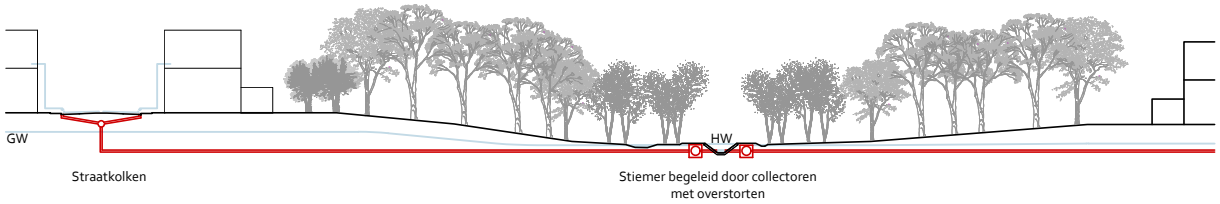
This has resulted in an ambitious and innovative phased plan. Rainwater is collected via valley-wide source measures (SUDs or Sustainable Urban Drainage systems) and used for the creation of a new parallel Stiemer. This should avoid discharge from the sewerage system in the future and at the same time create opportunities for wetting the valley. The current artificial Stiemer will be optimised as a purifying channel.

The Slagmolen project area forms the first realisation of this vision. By physically separating the Schabeek, a seepage watercourse, from the Stiemerbeek and leading it through a purifying through-flow marsh, pure water will in future flow into De Maten.

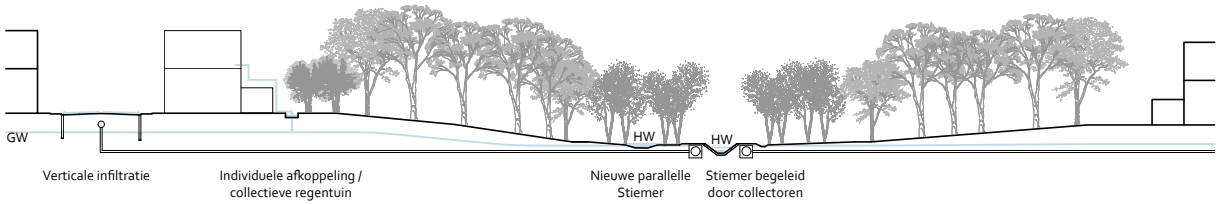
"If we want climate-adaptive cities in the future, we must have the courage to plan open space on a long-term and large spatial scale. I believe in the role of strong exemplary projects for creating support and funding for this."

Toon Denys,
Director-general,
Flemish Land Agency

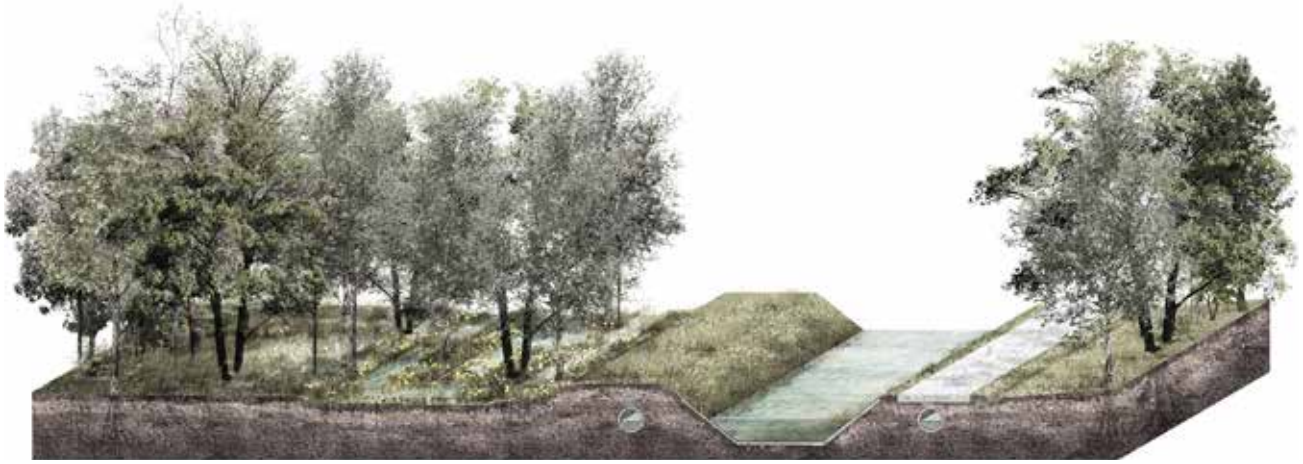
Stiemerbeek Valley: principles of Sustainable Urban Drainage systems



Principesnede bestaande situatie: hemelwater openbaar en publiek domein is aangesloten op rioleringsstelsel wat leidt tot overstortwerking op de Stiemer.



Principesnede voorgestelde situatie: SUDS (Sustainable Urban Drainage Systems) zorgen voor infiltratie van regenwater naar grondwater, wat als kwel een nieuwe Stiemer voedt. Gevolg minder hemelwater in rioolstelsel en vermindering overstortwerking op huidige Stiemer.



De nieuwe Stiemer als gesloten doorstroommoeras

Stiemerbeek Valley: multifunctional valley system

Slagmolen through-flow marsh case: example of disconnected precipitation and seepage that wets the valley parallel to the Stiemerbeek.

5 VIEW – GREEN/BLUE INFRASTRUCTURE HIGHER ON THE AGENDA

To stop the greying of the city and suburbs, green/blue infrastructure needs to be put higher on the agenda. The experiences from the Green4Grey project show that it can be done, and they deliver insights for a successful project. What is crucial here is commitment at all levels and the cooperation of the neighbourhood.

5.1 BEST PRACTICES FOR MORE GREEN/BLUE INFRASTRUCTURE

The list below is a summary of tips resulting from the Green4Grey project. They offer focal points and 'lessons learnt' for more green/blue elements in urbanised environments:

1. Make a plan for green/blue infrastructure that integrates multiple environmental and other objectives into one plan (such as biodiversity, water buffering, recreation, environment education). This ensures that diverse target groups are interested in implementing the plan.

2. Focus on participation. Involve all the parties in the preparation of the plan and be flexible enough to adapt the plans and make compromises based on the local needs (without compromising the overall environmental objective of the project).

3. Use a wide range of modern communication tools tailored to different target groups in the design and realisation of green/blue infrastructure. Use simple communication language for complex concepts (e.g. logos for complicated concepts such as ecosystem services).

4. Invest in environment education and raising awareness. Explain clearly where specific investments are needed. Each individual who is persuaded of the usefulness of green/blue infrastructure is as valuable to a green/blue future as the investment itself.

5. Make management, maintenance and respect for long-term investments an essential part of the project from the outset. Participation processes and communication help combat problems such as poor management and vandalism.

6. Show visible field results to policymakers and experts (including via site visits): many plans get stuck in the conceptual stage, because they are not understood by the policymakers or are too abstract. Ensure that there are quick wins in lengthy processes.

7. Develop long-term visions for green/blue infrastructure on a large spatial scale that cannot be immediately implemented. They form a stepping stone for future developments and offer a counterbalance to increasing grey infrastructure. What's more, they are necessary to respond to societal challenges such as climate change.

8. View each site realisation as a starting point for new projects. Thus, initially small investments by a partner can lead to a larger-scale dynamic (domino effect).

9. Work closely with local authorities. Local authorities are the ambassadors of the project, both for consensus and for long-term maintenance. Co-financing by a regional authority (of X% of the total project) instead of a total subsidy (100% of the project costs) to the local partner can encourage greater responsibility for the investments in the long term and create a strong sense of ownership.

10. Cooperate with regions from other EU member states through expert exchanges and field visits. In this way, knowledge can be exchanged on similar challenges and issues relating to the implementation of green infrastructure.

5.2 RAISING AWARENESS AT ALL LEVELS

In order to continue initiating investments in green/blue infrastructure after completion of the project, Green4Grey has made efforts to push green/blue up the policy agendas at various policy levels and with a variety of target groups (local authorities and administrations, regional governments and administrations, education, business community, civil society, European level).

Green4Grey aims in this way:

- to achieve new partnerships in the long term;
- to share knowledge and experience;
- to release more budgets for green infrastructure at all levels of scale;
- to replicate best practices at all levels of policy implementation.

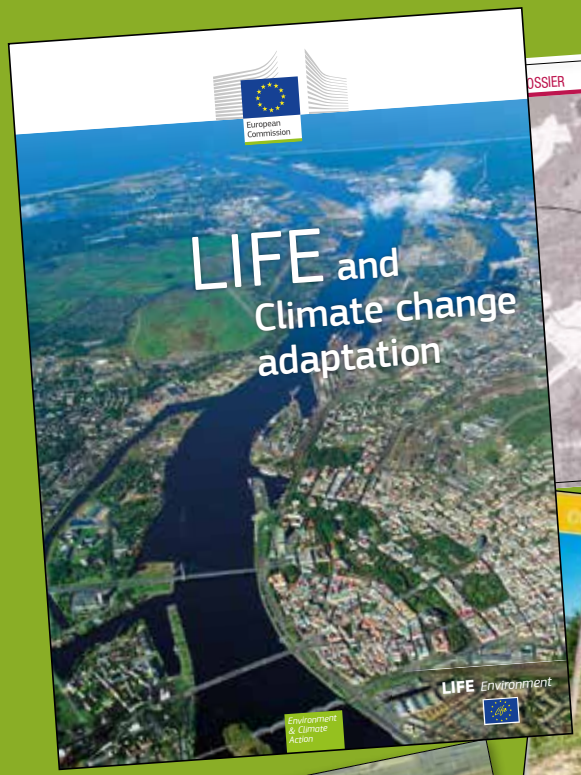
The Flemish Land Agency is, as regional agency within the Green4Grey project, the bridge builder between the local and the European levels. It thus forms an important link between policy frameworks for green infrastructure on the one hand and the implementation and assessment of the policy frameworks in the field on the other. Each level of scale has an added value when implementing green infrastructure (see table p. 94). The challenge is to maintain the link between the levels, so that strategic supra-local interests are not lost in local interests and vice versa.

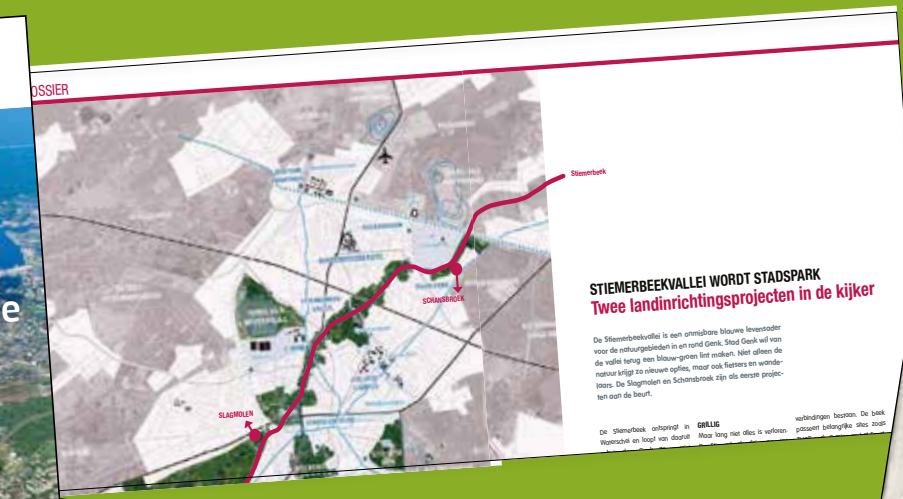
> "Think European or global, but act local"
>
> Project team LIFE GREENGREY, FLEMISH LAND AGENCY


Life

The importance of the various scale levels to the implementation of green/blue infrastructure

LOCAL: municipalities, local target groups	REGIONAL: Flemish Land Agency	EUROPEAN: European Commission
Implementation level on a local scale; achieve green/blue infrastructure at neighbourhood level	Planning level and implementation on a regional scale (e.g. achieve green/blue implementation at valley level)	Policy level: addressing major societal challenges such as biodiversity and climate adaptation through policy frameworks and guidelines
Implementation of policy framework	Bridge between the general policy framework and implementation	General policy focal points and trends
Possibility for starting pilot projects	Replicate pilot projects on a regional scale	Trans-national pilot projects: learning from other urban environments ensures inno-vation and dissemination of knowledge
Closest to the population and level at which to overcome 'Not In My Backyard' syndrome	Ability to transcend local interests from an area-based approach with all partners	Ability to transcend regional and national interests through partnership models and European co-funding
Limited budget	Medium-large budget	Larger European project funds (LIFE, Interreg, EFRO...)


European Commission
LIFE and
Climate change
adaptation
LIFE Environment
Environment & Climate Action


DOSSIER
Stiemerbeek
SLAGMOLEN
SCHANSBROEK
STIEMERBEEKVALLEI WORDT STADSPARK
Twee landinrichtingsprojecten in de kijker


38
UIT UW GEMEENTE
BEEK TUSSEN GENK EN DIEPENBEEK MOET WEER KRONKELEN
4,3 miljoen voor groene Stiemerbeek
GENK/DIEPENBEEK
De Stiemerbeek ligt te hoogte van de Slagmolen in een betonnen bedding gestopt. Bedoeling is dat de beek weer te letten kronkelen.
HAGUT


OPVERKENNING
Van grijs
naar groen


Green measures for grey areas


Vlaanderen
is wetenschap
50 tinten groen
Naar een gemeenschappelijke beleidsstrategie
voor groene infrastructuur
Anik Schneiders, Marijke Thoonen en Katrijn Alaerts
INSTITUUT
NATUUR- EN BOSONDERZOEK


Life


IN GROTE LIJNEN
ECOSYSTEEMDIENSTEN IN BEELD
GREEN4GREY


NIEUWSFLITSEN
OMGEVING
Opening van het nieuwe park Het Zeen Sterrebeek
GREEN4GREY
EU GREEN WEEK
GREEN CITIES FOR A GREENER FUTURE
3

5.3 COMMUNICATION IMPACT OF THE PROJECT

Number of events, information points	44 (of which 7 opening events of project areas)
Number of networking moments (informative site visits for stakeholders, steering group meetings, press conferences, design workshops, networking with other EU projects) Number of views of projectfilm Green4Grey	> 200
Total number of persons reached	>20.000
Type of target groups	Policy makers, Experts, Public authorities, Businesses, Inhabitants, Local associations, Students, Lecturers, Children
Level	Local (> 8000), Regional (> 6000), European (> 5000)

Number of press releases	32
Number of social media messages	126
Number of likes	223
Number of press articles	67
Number of references in publications	21
Number of reports on TV	3
Number of visitors to the website	>20.000
Number of information signs on site	118
Number of views of projectfilm Green4Grey	18


RINGtv
Hallerbos wordt verbonden met Zoniënwoud
Vandaag is in Dworp de eerste spadesteek gegeven van het landinrichtingsproject 'Land van Tervilinck'. De bedoeling is om via natuurgebied het Hallerbos te verbinden met het Zoniënwoud.
Nieuws
Sport
VIVA!
Nieuws uit Vlaanderen
Brussel
Net gemist


KENNISNETWERK
Green4Grey - inspiratiegids natuurvriendelijke inrichting bedrijventerreinen


Vlaanderen
is ruimte
Europese middelen voor ruimtelijke ontwikkeling


Commission Européenne en Belgique / Europese Commissie in België
Vind ik leuk
Commission Européenne en Belgique / Europese Commissie in België
De Vijfers, in het verstedelijkte gebied rond Brussel en in zes projectgebieden wordt een onbebouwde stedelijke restruimte omgevormd tot een aantrekkelijke en veelzijdige natuurlijke plek. Green4Grey loopt van 1 juli 2014 tot 30...


UNION EUROPÉENNE
DÉVELOPPEMENT DURABLE


Vlaams Parlement
ingediend op
516 (2015-2016) – Nr. 1
19 oktober 2015 (2015-2016)
Beleidsbrief
Vlaamse Rand
2015-2016
ingediend door minister Ben Weyts


DYNAMISCHE VOORSTELLING RESULTATEN WORKSHOP GREEN4GREY
DONDERDAG 10.11.2016
KU LEUVEN


GREEN DEAL
BEDRIJVEN & BIODIVERSITEIT
Green Deal Bedrijven en biodiversiteit
Wat en waarom?
Wat kan je doen?
Kalender


STORT OMGEVORMD TOT NATUURGEBIED
Nieuwe groene long vlak bij Brusselse ring
Het nieuwe Kerremanspark in Zellik vormt een groene oase vlak bij de Brusselse ring en het Researchpark. Een pad van een kilometer nodigt uit tot een wandeling.


SEINECITYPARK / Life + -programma
Uitwisselingen en samenwerking met het LIFE + Green4Grey-project
Abonneer u op de nieuwsbrief

6 CONCLUSIONS

Grey4Grey demonstrates that green and blue infrastructure projects can stop the greying of urban environments. A multifunctional, integrated and participative approach increases the support and ownership, leading both to a succesful realisation of a project and the long term conservation of this area.

The three projects in the "Flemish Belt" around Brussels and the three projects in "De Wijers" nearby Hasselt-Genk have created an added value for society and nature. To prevent large scale problems (such as flooding) a vision at landscape-level is needed, as illustrated in the Stiemerbeek Valley and Molenbeek Valley.

The pilot projects have led to 10 best-practises for implementing green and blue projects to stop the greying of the environment. Sensibilisation and communication on the need for more green and blue in urban areas, should lead to bringing them higher on the policy agenda at local, regional and national level.

In doing so the spatial planning goals by 2040 can be achieved, which means a net uptake of open space evolving from 6 ha/day to 0 ha/day.

This project is realized with support from the financial instrument LIFE of the European Union

With financial support and cooperation from the municipalities of:

With support from:

VLM.be
green4grey.be