NBS Business Model – Green Urban Areas

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Topic: ***SCC-2-2016-2017: Smart Cities and Communities Nature based solutions***

1. GREEN URBAN AREAS BUSINESS MODEL

Green urban areas correspond to spaces with vegetation within or partly embraced by urban fabric. This class is assigned for urban greenery, which usually has recreational or ornamental character and is usually accessible for the public. Green urban areas aim at imparting several positive effects on urban ecosystems. Some main benefits are the provision of habitats for urban wildlife, regulation of air temperature, pollution control, shading, CO2 absorption, and human recreation.

The following *Table 1.1* resumes main features, value proposition, conditions for implementation, main stakeholders involved, costs, financing options and limits of green urban areas, considering the desk research, the analysis of the NBS implemented in Front-runner Cities and information provided in the *D5.1 NSB Technical Handbook*.

Table 1.1: Features, value proposition, conditions for implementation, stakeholders, costs, financing options and limits of green urban areas

Features
• Green areas, such as line trees and boulevards, have multiple effects on the local micro-climate conditions, absorb particular matter and provide shade for people as well as for buildings. One of the main positive effects for the human well-being in periods with high temperatures is the air-cooling effect and the mitigation of urban heat stress. • Residential Parks are part of the Green Infrastructure (GI) of cities and serve the residential areas as the nearest main entry point for nature-based recreation. Larger spatial elements of GI are district parks that often deliver more functions and combine various uses (e.g., sports fields). Smaller green spaces are often playgrounds or connecting green strips of land. • Areas of derelict infrastructure, e.g., railway lines, that are transformed into linear parks play an important role in urban green infrastructure networks and help to re-nature cities. Also, regeneration along waterways and rivers often results in linear interconnecting parks.
Value proposition/Benefits
• Microclimate regulation/Habitat provision • Aesthetics/recreation • Rainwater regulation (delayed runoff) • Meeting places • Public spaces for heat reduction • Great potential for creating interconnected systems • Connectivity, biodiversity and ecosystem services • Improved air quality with higher CO2 absorption with a subsequent better quality of life • Reduced vehicles use decreasing greenhouse gas emissions • Reduced risk of flooding • Water storage capacity • Improved soil and water quality
Conditions for Implementation
• Local circumstances (e.g., topography, route characteristics, surrounding land use, and underground uses) need to be considered

- The soil and subsurface should generally be suitable for the establishment of green areas and may need to be replaced by standard soils if necessary
- New urban development areas provide the opportunity to locate residential parks at the most suitable location maximising the effects on urban climate. In order to have a maximised impact on urban climate the spatially equal distribution of parks is important.
- Abandoned traffic infrastructure may be the most convenient way to establish linear parks and green corridors.

Limitations/Barriers

- The allergenic potential of pollen and BVOC emissions
- Reduced airflow → Higher pollution in street canyon
- Accessibility
- Green corridors may need a high level of maintenance (e.g., bridges)

Stakeholders/Beneficiaries

- Local residents that express their opinions during forums held at the planning and implementation stages
- A municipality can finance the renovation of the area
- Offices: employees may benefit from the access to public green spaces improving their quality of life
- Local businesses (e.g., shops, real estate agencies, professional associations etc.) will enhance their attractiveness and visibility
- City water management (Water Board) monitors the quality of the water surface and it manages water levels in the areas where people live and work. Furthermore, it prevents floods in rural areas. The selected NBS will improve the water management system.
- City users (e.g., employees and students): people that do not necessarily live in the city but come regularly to the city for work or to use other services or amenities could benefit of the requalification of the area
- Green builders, maintenance and planning companies could obtain business opportunities planning, building and maintain the newly renovated area
- Housing estates that during planning procedures participate in debates

Costs

- Planning costs ≈ 3000-5000 € depending on the scale of the plan
- Implementation costs ≈ 1-10 €/m2
- Maintenance costs ≈ 0-10 €/m2 year

Financing options

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- Innovative municipal financing approaches
  - Municipal investment: municipality takes the lead in NBS financing by earmarking a share of public budget for the NBS implementation and maintenance. For example, municipal green funds (e.g., Groenfonds in Eindhoven connected to the regulation for the compensation of green space)
  - Accessing external funding sources: for example, regional, national and EU and/or other funds can be an important source of NBS financing
- Public-Private partnerships
  - Institutionalised PPPs in terms of citizen associations: for example housing companies and other communities can share the costs incurred for projects in public spaces
  - Business Improvement District (BID): BID implies financing and managing improvements to commercial and industrial environments based on the consent by a majority of businesses who accept an additional levy
  - Partnerships encouraged by external funding programmes (e.g., EU funding)
  - Contractual PPPs: standard contracts with the private sector for green space maintenance and operation
- Mandatory Requirements and Tax Initiatives
  - Private sector financing: private companies integrate NBS into their processes and structures voluntarily through marked based policy instruments, such as incentive systems.
  - Land value & value-capture taxation: for example, inhabitants and property owners pay taxes to allow a municipality to reach its objectives (e.g. in Eindhoven, if a building company needs to pave in green space, they have to make a deposit into the Groenfonds, fund dedicated to urban green measurements).
- Incentive programmes
  - Private sector financing: private companies integrate NBS into their processes and structures either voluntarily through marked based policy instruments, such as incentive systems
  - Partnership with private enterprises to obtain funds to co-finance projects: for example, innovation vouchers enable existing housing companies and other communities to co-design and co-implement the NBS selected
  - Parks Trust: usually is a self-financing entity which relies on a number of different income sources, but always acts in the service of the public.

2. CASE STUDIES: BUSINESS MODEL OF GREEN URBAN AREAS

1.1 Clausplein (Eindhoven) experience - Green urban areas

Since the city of Eindhoven wants to become a more climate robust city, the municipality intends to create 40-50 mm additional aboveground water storage for peak showers (in total 60 mm storage). One of the ways to achieve this objective is to increase the permeability and greening of urban surfaces by replacing the pavement and impermeable surfacing with vegetation, pavement with more permeable materials and/or water areas. Limiting of surface sealing and greening public areas creates space to store water and infiltrate it into the ground.

The implementation of **permeable surfaces and green urban areas** is planned in the project Clausplein (one of the several NBS locations). This is a square, owned by the municipality, with little green areas situated on the top of a parking garage. One of the goals of the project is to increase green areas implementing permeable surfaces.

1.1.1 Value Proposition

The city of Eindhoven is facing serious challenges due to rapid population growth. Critical issues for the city include flooding, urban heat stress, air pollution, lower quality of life and the disappearance of streams and ditches.

Increasing permeability and greening of urban surfaces, replacing impermeable surfaces with vegetation or water will allow **reducing the risk of flooding and decreasing urban heat stresses and pollution**.

Furthermore, the creation of new water systems (to be separated from the sewage system) will enable optimising the use of **water storage capacity** as well as **creating extra capacity in the sewage system** of Eindhoven.

The increase of greening of urban surfaces will also contribute to enhance **biodiversity**, and to **improve the general quality of life**. In some areas, filtering plants, such as reeds, can be used to **improve water quality**.

The following *Figure 2.1* and *Figure 2.2*[1] show the current view and the new design of the Clausplein square, with increased biodiversity and liveability.

[1] These figures are property of the Municipality of Eindhoven and can be publicly disseminated.

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Figure 2.1: Clausplein before requalification

Figure 2.2: Clausplein after requalification

1.1.2 Key Beneficiaries and Stakeholders

The main groups of beneficiaries are:

- Residents around the square: people that live in Clausplein square will benefit the creation of green surfaces improving the quality of their life.
- Municipality: the Municipality of Eindhoven owns the area and finances its renovation
- Offices: employees may benefit from access to public green spaces during their breaks, potentially improving their quality of life,
- Public libraries located in the surroundings and the design academy located in the square will enhance their attractiveness and visibility for inhabitants and students.
- The Public Health Department on the square may offer a nicer and greener environment to their users (employees, patients and citizen at large).
- City water management (Water Board): it monitors the quality of the water surface and it manages water levels in the areas where people live and work. Furthermore, it prevents floods in rural areas. The selected NBS will improve the water management system.
- City users (e.g., employees, students, patients etc.): people that do not necessarily live in the city but come regularly to the city for work or to use other services or amenities could benefit of the requalification of the area

1.1.3 Financing models

According to a first estimation coming from the Municipality of Eindhoven, all interventions needed for the realisation of the selected NBS foreseen public funds. Only in some situations, private parties (indirectly) share the costs incurred for projects in the public space.

Much of the funding comes from the public partners, in terms of income from taxes or licenses, funding from public bodies such as the European Community, regions, national government and utility companies. Some of the funds are generated by the municipality from selling portions of public land.

In Eindhoven, investments in public spaces are legitimised because sewage and water treatment, infrastructure, traffic management, public transport and town planning are seen as a public responsibility. In addition, inhabitants pay tax to allow the municipality to fulfil their tasks.

Residents and business owners are mostly not willing to pay an extra contribution in favour of the public space[2].

Since March 2018, there is a municipal green fund called "Groenfonds" that is connected to the Eindhoven regulation for the compensation of green space. If a building company needs to pave in green space, they have to make a deposit into the Groenfonds. The municipality can spend this money on certain greening projects such as the interventions in Clausplein square.
Finally, funds can be obtained thanks to the partnership with private enterprises: examples may be agreements to co-finance the project with owners of some of the buildings at the square ('Witte Dame').

1.1.4 Actors involved in the implementation and maintenance of green urban areas

An active stakeholder's involvement has been essential to perform good planning and implementation of permeable surfaces and green urban areas. The main actors involved in the implementation and maintenance of the selected NBS are reported below:

- Project leader and Policy advisor
- Designers, civil engineers, maintenance experts, area coordinators
- Contractors for construction and maintenance
- Real estate investors
- Non-government organisations
- Green platform ("Trefpunt Groen Eindhoven"), an NGO that represents green/environmental organisations
- Businesses on square
- Citizens

In the selected example, public tenders will be used to find contractors for construction and maintenance. In Eindhoven's larger projects, tenders contain also the design of public space. Regarding the project financing, the main involved stakeholder is the municipality.

1.1.5 Key activities

The following *Table 2.1* identifies the key activities needed to deliver the proposition of the project.

Table 2.1: Key activities foreseen for the implementation of the permeable surfaces and green urban areas

Key activities	Description of activities
Inform, inspire and involve stakeholders	Dissemination of the purpose, advantages and benefits of the selected NBS
R&D	Selection of plants, paving materials, ways of construction and, if necessary, development/production of new materials
Construction	Implementation of the project with new material laying
Public space monitoring	Monitoring of the quality of public space by the owner of 'Witte Dame'. The actual maintenance is shared between owner and municipality

[2] Considerations based on Eindhoven Municipality experience.

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Agreement	Obtaining an investor and design agreement to proceed with the project

1.1.6 Key resources

Table 2.2 identifies the key resources needed in Eindhoven to fulfil the proposition of the selected NBS.

Table 2.2: Key resources for permeable surfaces and green urban areas

Key resources	Needed to/for…
Project leader, designers, civil engineer, maintenance experts	Procurement team planning specific knowledge and driving change and creativity
Construction/maintenance contractors	Implement and maintain the project
Money and funds (Municipality budget, subsides/grants regional, national, European)	Design, implement and maintain the NBS
Municipality	Involve, inform, inspire residents/businesses through a communication plan

1.1.7 Cost structure

This section collects preliminary information about the main economic and environmental costs during the implementation of permeable surfaces and green urban areas.

Costs for the implementation of permeable surfaces and green areas in the city of Eindhoven were collected from the official document of the Municipality of Eindhoven "Eindhoven goes greener" (Postmes, 2014). Direct expenses include costs for the installation, maintenance, and management as well as the replacement of paving materials at the end of its lifespan.

In particular, *Table 2.3* below provides an up-to-date overview of direct costs for the basic design of the project. Looking at the direct costs, the most important for the Municipality of Eindhoven are shown at the top of the table. The cost for both installation and maintenance increases when exclusive material and/or planting are used. The costs for the reconstruction of the Clausplein is estimated to be € 700,000, the area is about 4000 m^2. Designing and co-creation are not included in these costs. The maintenance costs are not clear yet because a new water storage system will be introduced. The maintenance of the green area maybe derived from *Table 2.3*

Table 2.3: Costs for the implementation of permeable surfaces and green urban areas

Type of costs	Implementation € per m^2	Maintenance € per m^2	Lifespan	Replacement € per m^2	Investment value [3] € per m^2
Dry grassland	2,15	0,12	100	2,15	8
Tall grass	2,15	0,22	60	2,15	14
Lawn	2,15	0,77	30	2,15	43
Forest park	6,5	1,61	70	8,5	90

[3] Calculated using an inflation of 1.8% and a 3.8% interest

Convenient shrubbery	14,85	1,1	20	16,85	104
Pavement (no drive lane)	38	1,35	60	10,5	123
Ornamental planting	14,85	2,04	20	16,85	151
Paved driving lane	59	1,46	40	61,5	183
Closed paved driving lane	75	1,16	50	90	186

Currently it is not possible to establish if the total costs will be higher or smaller with respect to the total cost of conventional solutions, but generally, as indicated in the official document "Eindhoven goes greener" of the Municipality of Eindhoven, costs of installing and maintaining manageable green spaces are considerably lower than the price of paving those areas. Costs for maintenance have not yet been evaluated. The implementation of permeable surfaces and green areas have no relevant environmental costs in addition to those related to temporary increasing of air pollution during the construction works and limited to close proximity of the construction sites.

Figure 3 below summarizes the main sections of the Business Model Canvas developed for Green Urban Areas in Clauspein (Eindhoven).

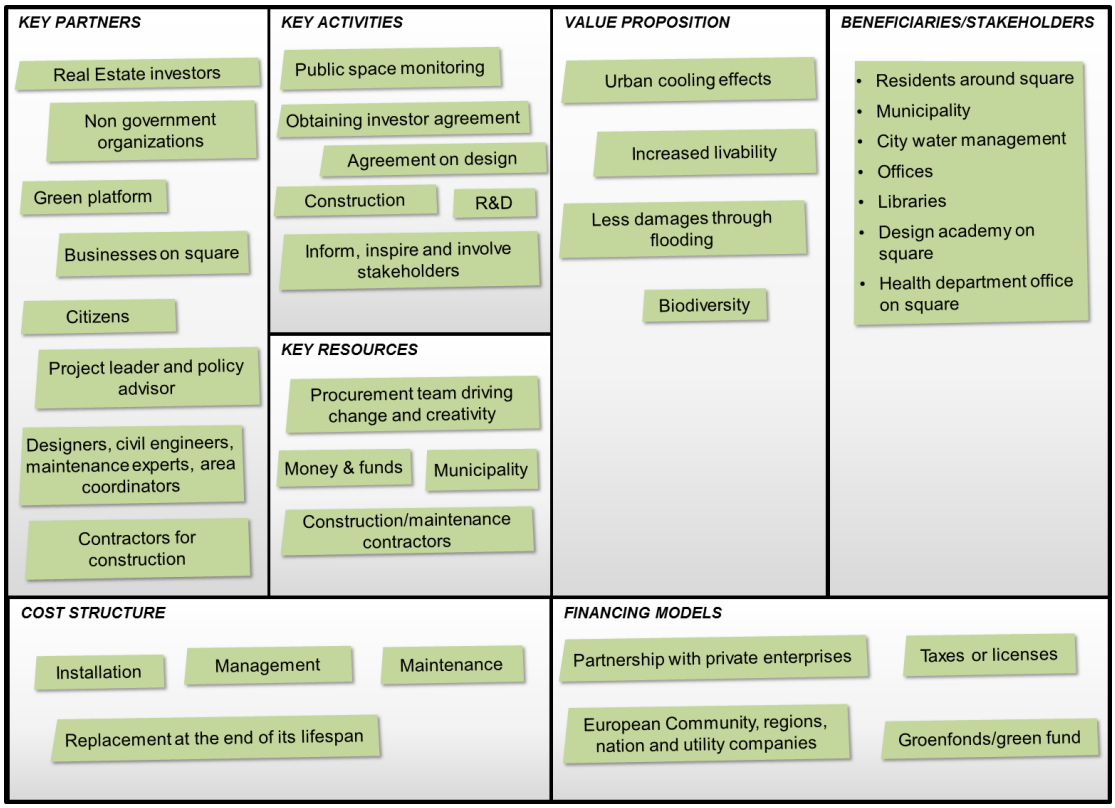

Figure 3: Business Model Canvas –Green Urban Areas in Clausplein (EIN)

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1.2 Benefits/advantages at social, economic and environmental level

The integration of permeable surfaces and green areas in the urban context creates a series of advantages from an environmental, economic and social point of view as shown in the following Figure.

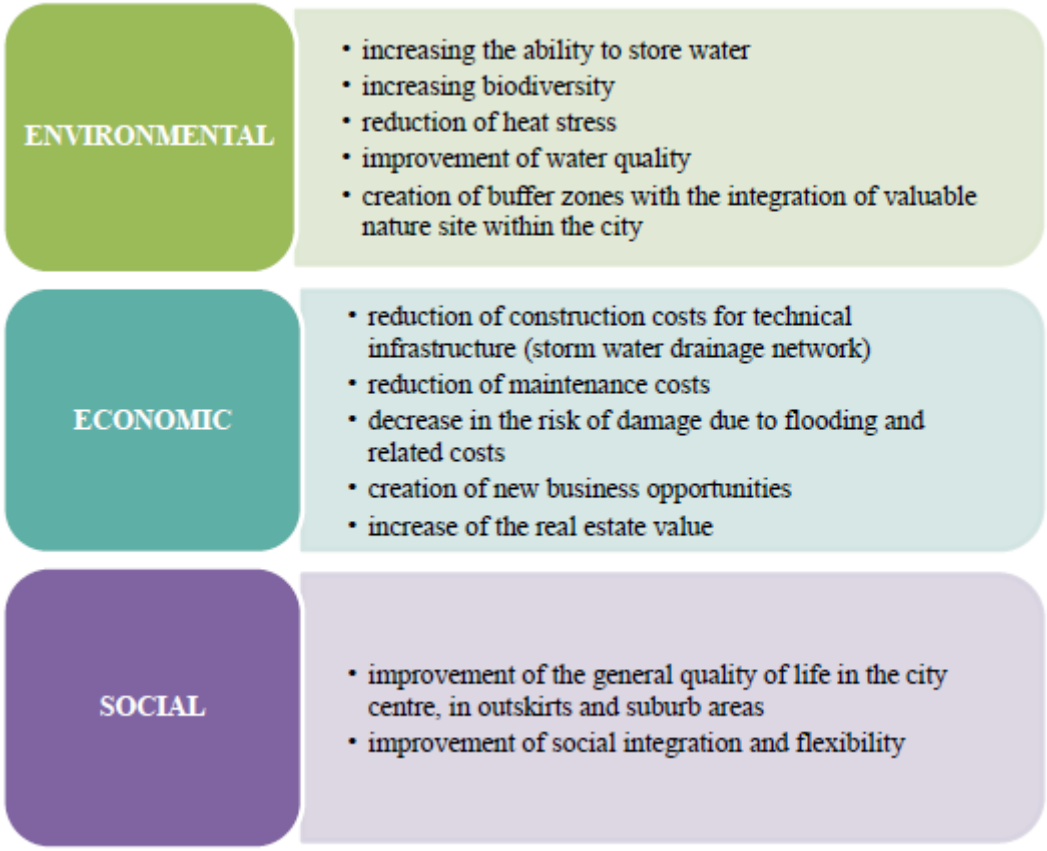

Figure 4: Eindhoven NBS expected benefits and advantages

As states within the document "Eindhoven goes greener", green can, as an example, create advantages for citizens of Eindhoven in the following ways:

- healthcare costs are considerably higher in a paved environment. Costs for medicine and medical treatments may be lower in a green working and living environment, due to the reduced occurrence of diseases in medium term (e.g., respiratory diseases) and the general increase of the urban quality.
- real estate has an increased value in a green environment.
- the rise of temperature in a city during warmer periods increases cooling energy costs. A green city typically uses less energy for cooling since the heat island effect is generally reduced. A green city has lower fluctuations between extreme temperatures throughout the day and different seasons. This reduces heating energy costs compared to those in a paved environment. Especially robust green in direct proximity to buildings reduces the difference in indoor and outdoor temperatures and decreases energy expenses.
- water retaining facilities need to be installed due to the increased speed of water drainage from paved areas. The cost for these facilities is a lot lower for green areas, because they contain and evaporate water. Furthermore, the costs of sewage and treatment are clearly related to the size of the paved area connected to the sewage system. Greening paved area reduces these costs.

1.3 NBS replicabilty: expected drivers and barriers

1.3.1 Possible drivers to NBS replicability

Regarding the implementation of permeable surfaces and green areas in an urban context, as tested in the city of Eindhoven, there could be some drivers able to facilitate the replicability and upscaling potential of the selected NBS. The following considerations summarise the possible drivers considering both technical/organisational aspects and non-technical (social and economic) guides.

- **Technical/Organizational drivers**

Several technical and organisational issues can support the implementation of permeable surfaces and green urban areas:

  - technology and know-how transfer between universities, research centres and businesses;
  - proven reduction of the storm-water within the system and improving of the rainwater management;
  - living lab experience;
  - other examples of implementation that can help to prioritise the interventions with the lessons learned.

- **Stakeholder-related constellation that supports implementation**

Generally, "Trefpunt Groen Eindhoven" supports the implementation of more green spaces. They are spokesperson for several green organizations (NGOs), inform their network about projects, show their support and answer questions on social media. They also provide advice for projects in green space and some projects need their permission to be implemented.

- **Social drivers**

  - educational program and increase citizens' interest about the NBS implemented;
  - creation of a new identity and image of the urban spaces;
  - improvement of citizens' health with new places for moving and recreating;
  - new meeting points for social interaction.

- **Regulations and incentives/funds**

Several regulations and incentives can support the implementation of permeable surfaces and green urban areas:

  - new regulations for climate adaptation that contain quite strict demands for adding green space and storing water (local policy, national commitment);
  - local policy with new vision for the inner city that add 10% of green space;
  - "*groenfonds*"/green fund, referred in particular to a provincial fund called ""Groen Ontwikkelfonds Brabant" (Green Development Fund Brabant). This incentive was founded in 2014 and is aimed at the realisation of the Natuur Netwerk Brabant (Nature Netwerk Brabant): nature areas, ecological structures and connections. When a project is included in this 'NNB', it can get some specific funding for the addition of green spaces. It contains subsidies for buying land, depreciation, and construction. Since March 2018 Eindhoven has also a municipal green fund: the "Groenfonds" for the compensation of green space. Citizens have to make a deposit into the Groenfonds to compensate financially for building or paving in green space. The municipality can spend this money on certain projects concerning adding green.
  - discounts and subsidies for the disconnection from the public sewage network;

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- o agreements, private or public co-funding and promotion of start-ups and entrepreneurship.

1.3.2 Possible barriers to NBS replicability

Some barriers could hamper the implementation and replicability of permeable surfaces and green areas in an urban context, as tested in the city of Eindhoven. The following considerations summarises the possible barriers considering both technical/organisational and non-technical (social and economic) aspects.

- **Too many ambitions**

Designers of public spaces have to pay attention to all the ambitions and regulations that a design has to respect. Often, green spaces are not implemented to leave space, for example, to the construction of new parking or accessibility.
Prioritizing all these ambitions is very difficult for a designer. The city is working on a better way to do this on a different level of the organization, on the level of program management.
In some cases, priorities are set for political reasons.

- **Pre-conditions at site**
  - soil has to be clean enough – contamination can bring a lot of extra costs;
  - soil can be densified by use (less permeable);
  - soil can be densified during construction (less permeable).

- **Technical/Organizational barriers**

Several technical or organisational aspects can limit the implementation of permeable surfaces and green urban areas:

  - non appropriate or little flexible rules and regulations;
  - problem in identifying juridical ownership of the areas;
  - presence of underground pipelines and cables (currently it is better to separate trees from cables and pipelines) – Competition for underground space between NBS and pipes, cables and other human-made infrastructure;
  - problems related to the change from an old water management system to a new one.

- **Not in my back yard/I need my space**

Most inhabitants are happy when green space is added, but they generally do not want to lose parking space in their own environment or at their most used amenities like shops and hospitals. There have also been complaints about losing space to drive, about the accessibility of amenities by car, when paved space was turned into green space.
The accessibility is of course also very important for business owners.

- **Social barriers**
  - lack of learning process, educational program and citizens' sensitization about the NBS implemented;
  - need for a change of the citizens' mind-set;
  - reduced perception of safety around the NBS because of the presence of shrubs that could create areas not completely visible.

- **Economic barriers**

In addition, several economic aspects can limit the implementation of permeable surfaces and green urban areas:

  - increase of the maintenance costs;
  - extra costs due to the possibly presence of contaminated soil;

- reduction/loss of the direct accessibility with cars for the business owner;
- difference between economic investments and political impacts: who invests now in the implementation of permeable surfaces and green areas makes costs but the benefits will come later;
- low flexibility for future use of the areas.

1.4 Tampere experience – Urban gardens with small scale NBS

Urban gardens with small-scale NBS in Tampere refers to co-design and co-implement **small-scale NBS and complementary infrastructure** in the **Vuores area**. These solutions include rain gardens, rainwater collection systems for non-potable irrigation, urban garden areas and other similar solutions.

1.4.1 Value proposition

The main objective of urban gardens with small-scale NBS in Tampere is to enhance **social cohesion** developing **recreation areas** such as paths around lake, platforms/swimming places to the lakes, bonfire places, parks that encourage physical activities, wood for kids to play in water elements, horse-riding routes, more open landscape around lakes and parking lots to access recreational areas.

In addition, urban gardens can **improve biodiversity**: the areas will be characterised by the installation of more street/plot trees, perennial plants, insect hotels more wilderness and less controlled parks. This solution is estimated to provide attractive green areas for citizens, thus **increasing their recreation opportunities and physical activities and eventually their well-being and health**. Furthermore, these solutions allow **managing storm water** that could create floating wetlands.

Figure 2.5 shows an example of urban gardens with small-scale NBS already implemented in Helsinki. Similar solutions may be replicated in Vuores area in Tampere.

Figure 2.5: Examples of urban gardens with small-scale NBS in Tampere and Helsinki

1.4.2 Key Beneficiaries and Stakeholders

The main groups of beneficiaries are:

- Inhabitants and citizens: people that live in the Vuores area will improve the quality of their life thanks to the enhancement of biodiversity, the reduction of heat stress. In particular families with children and older population may greatly benefit from the establishment of social cohesion in a socially deprived area

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- City users (especially employees and students): people that do not live in the city but come regularly in the city for work or to use other services or amenities could benefit of the requalification of the area
- Municipality: the Municipality of Tampere owns the Vuores area and finance the renovation
- Green builders, maintenance and planning companies could obtain business opportunities planning, building and maintain the newly renovated area
- Investors: houses with high quality gardens (multi-functional NBS) are a good investment; these gardens provide added value for residents & make houses more attractive.

1.4.3 Financing models

The implementation of this NBS was funded by "innovation vouchers" to enable existing housing companies and other communities to co-design and co-implement small-scale NBS and complementary infrastructure and/or urban garden areas. Housing companies and other communities in Vuores applied for 3 x 10 000 € vouchers to plan and implement communal gardens and a horse paddock. It is expected that this will improve storm water management, biodiversity and recreational use. Private investments made by housing companies and other communities funded the rest of the implementation not covered by innovation vouchers. In the future, similar installations will be funded by property owners.

1.4.4 Actors involved in the implementation and maintenance of urban gardens

In order to achieve a good implementation of the selected NBS in Tampere, public and private stakeholders have been widely involved. The main actors involved in the implementation and maintenance of urban gardens with small-scale NBS are reported below:

- Housing companies, communities and residents are involved in the co-design and co-implementation of urban gardens.
- Tampere Municipality is involved in the project with the role of co-definition of demonstration aims, supervision according to the aims and stakeholder engagement.
- UNaLab project coordinator VTT facilitates communication between other UNaLab activities, especially indicator and monitoring development.
- Research institutions are involved in related and nearby located NBS/city green projects.
- SMEs are involved in the selling of new products and services needed and in replication and information spreading. Activities performed are e.g. maintenance and monitoring services.
- Builders are involved in the construction of the green infrastructure and in the replication and information spreading.
- Landscape planners are involved in the planning of the demonstration and in the replication and information spreading.
- Citizens (co-creation participants, Vuores visitors, students, NGOs) are involved in mobilising results. The main activities performed are participating in Vuores site visits.

1.4.5 Key activities

Table 2.4 identifies the key activities needed to implement urban gardens and reach the aim of the project.

Table 2.4: Key activities foreseen for the implementation of the urban gardens

Key activities	Description
R&D	Consulting previous R&D projects, setting monitoring program according to the aims, analysing results, mobilising results (e.g., temperature, water quantity and quality, biodiversity, effects to building structures, moistures)
Renovation and requalification	Renovation and requalification of the area through the installation of multi-functional small scale NBS into communal urban gardens mainly in private land (plots)
Frequent maintenance	Learning new maintenance practices that again meet the aims, new actors are needed, and heavy maintenance may not be feasible
Stakeholder engagement	To build urban gardens that meet aims and is replicable, requires interaction with many internal (city units) and external stakeholders.
Promotion	Marketing and branding promotion involving stakeholders and mobilising results

1.4.6 Key resources

In order to implement urban gardens in a successful way in the Front-runner City of Tampere, a series of resources is needed. The following *Table 2.5* identifies the key resources needed to fulfil the proposition of the project.

Table 2.5: Key resources for urban gardens

Key resources	Needed to…
Planners and green experts	Implement and maintain urban gardens in the Vuores area
Money and funds (EU + municipality)	The replication of the construction phase for companies/investors
Marketing and advertising materials	Involve stakeholders and mobilise results

1.4.7 Cost structure

This section collects the preliminary information about the main economic costs needed for the implementation of urban gardens in the Vuores area in Tampere.

According to Municipality of Tampere, the following *Table 2.6* summarises the main types of cost to be taken into account for the implementation and maintenance of urban gardens.

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Table 2.6: Costs for the implementation of urban gardens

Type of costs	Cost for implementation
Planning	ca. 3000-5000 € depending on the scale of the plan
Implementation	ca. 5000-15000 € depending on the scale of the plan
Maintenance	ca. 3-12 €/m2 Residents maintain gardens voluntarily
Monitoring	Minimal, monitoring was carried out as a part UNaLab monitoring

Regarding the maintenance of the horse paddock, horses maintain the field together with the manual work for picking horse manure from the park in events. In addition, the city is cutting the hay once a year with a small tractor.