Erasmus University Rotterdam

An overview of the Social Innovations for Blue-Green Infrastructure in the ten BEGIN-cities

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Interreg North Sea Region BEGIN
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Background to the factsheets

The central premise of the Interreg North Sea Region BEGIN project is that Blue and Green Infrastructure (BGI) should be delivered through Social Innovation. Social innovation can be defined as *"the development and implementation of novel interventions, processes, programmes, products or models to meet social needs"*.[1][2] This document provides factsheets of the Social Innovations initiated by the ten BEGIN city partners located in six North-western European cities.

In operationalising social innovation, we zoom in on three elements[3]:

1. **New combinations**: the incorporation of new functionalities that move beyond urban drainage
2. **Cutting cross boundaries**: the integration of different policy domains
3. **Compelling new relationships**: new ways of stakeholder involvement that move beyond consultation

Each element is further introduced below. Together, the three elements are operationalised into a qualitative evaluative framework in which projects can positioned on an ordinal scale between "business-as-usual" (mono-functional projects led by urban drainage authorities without much stakeholder involvement) and "socially innovative" (multi-functional projects led by multiple authorities and in collaboration with local stakeholders).

1. New combinations

The first element considers the role BGI plays in the projects initiated by the BEGIN city partners. BGI can for example have ecological functions (e.g. enhancing biodiversity), production functions (e.g. improving urban drainage, stimulating economic development) and cultural functions (e.g. fostering social cohesion).[4] As a consequence, BGI projects can have a wide range of goals that move beyond urban drainage purposes.[5] Applied to the BEGIN projects, the projects can have multiple goals that lead to new functional combinations.

Whether these goals have led to new combinations is assessed based on the relative importance of the different goals in the project. Through questionnaires, the goals of the projects have been identified and their relative importance is assessed. The relative importance is scored on an ordinal five-point scale

[1] Milley, P., Szijarto, B., Svensson, K., & Cousins, J. B. (2018). The evaluation of social innovation: A review and integration of the current empirical knowledge base. *Evaluation*, *24*(2), 237-258.
[2] European Commission (2013) *Guide to social innovation*. Available at: http://s3platform.jrc.ec.europa.eu/documents/20182/84453/Guide_to_Social_Innovation.pdf
[3] Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). *Social innovation: what it is, why it matters and how it can be accelerated*. Oxford: Skoll Centre for Social Entrepreneurship. Available at: http://eureka.sbs.ox.ac.uk/761/1/Social_Innovation.pdf
[4] Lovell, S. T., & Taylor, J. R. (2013). Supplying urban ecosystem services through multifunctional green infrastructure in the United States. *Landscape Ecology*, *28*(8), 1447-1463.
[5] Kabisch, N., Frantzeskaki, N., Pauleit, S., Naumann, S., Davis, M., Artmann, M., ... & Zaunberger, K. (2016). Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action. *Ecology and Society*, *21*(2).
Raymond, C. M., Frantzeskaki, N., Kabisch, N., Berry, P., Breil, M., Nita, M. R., ... & Calfapietra, C. (2017). A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. *Environmental Science & Policy*, *77*, 15-24.

(see example below) that ranks between BGI as sole goal for urban drainage to BGI as one of many goals that are equally important to each other.

	Business-as-usual				*Social innovation*
(1) New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals

2. Cutting cross boundaries

Because of its multiple benefits, BGI can touch upon many different policy domains. The academic literature suggests that these domains have to become more integrated in order to deliver BGI successfully. As such, we see a potential accumulation of policy domains that could contribute to the BGI project. For our analysis, we identify five policy domains[6]:

	Domains	**Related terms**
1	*Urban drainage*	Climate adaptation, water management (stormwater, wastewater)
2	*Environmental management*	Ecosystem and biodiversity preservation, green space management
3	*Urban (re-)development*	Urban regeneration, mobility and transportation
4	*Public health and wellbeing*	Social cohesion and social justice, health and welfare
5	*Economic development*	Labour market, real estate (housing, offices)

In our assessment, we have identified the domains that are involved and the number of domains through questionnaires. The underlying assumption is that BGI projects will benefit from more disciplines, since this will do more justice to the integrative character of the BGI.

	Business-as-usual				*Social innovation*
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	Five or more disciplines

[6] Haines-Young, R., & Potschin, M. (2009). *Methodologies for defining and assessing ecosystem services*. Peterborough: Joint Nature Conservation Committee

3. Compelling new relationships

BGI require stakeholder involvement over the course of the lifecycle.[7] Collaborative governance arrangements are proposed for each stage in the project, in which local governments develop BGI measures together with local residents, NGOs, and businesses. To illustrate, the design phase may bring ideas together from different stakeholders, whereas the maintenance phase could entail citizen volunteers that monitor and co-maintain the BGI.

In order to identify to what extent stakeholder involvement takes place within the BEGIN projects, we mapped (1) who is involved, (2) the participation ambitions, and (3) through which means the participation ambitions are realised. Based on these three criteria, we were able to assess to what extent compelling new relationships have been created. These have been translated into different role of governments[8], reflected in either a more hierarchical relationship (non-participation) or a more horizontal relationship (e.g. partnerships, facilitation).

	Business-as-usual				*Social innovation*
Compelling new relationships	Non-participation	Consultation	Partnerships (formal or informal)	Facilitation (handing over responsibilities)	Self-organisation by community

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Social innovation overall

The assessment of the three elements offer together insights in *the extent* of social innovations within the BEGIN-project, as well as *the type* of social innovations. The overall score is the average of the three elements.

	Business-as-usual				***Social innovation***
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	Five or more disciplines
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative

[7] Wilker, J., Rusche, K., & Rymsa-Fitschen, C. (2016). Improving participation in green infrastructure planning. *Planning Practice & Research*, *31*(3), 229-249.

[8] Mees, H. L., Uittenbroek, C. J., Hegger, D. L., & Driessen, P. P. (2019). From citizen participation to government participation: A n exploration of the roles of local governments in community initiatives for climate change adaptation in the Netherlands. *Environmental Policy and Governance*, *29*(3), 198-208.

A comparison of the BEGIN cases

The factsheets of the projects initiated by the BEGIN city partners (provided in the next chapters) are compared in this section.

1. New combinations

The ten projects started by the BEGIN city partners can be clustered in three groups of cities.

The first group of cities – consisting of Aberdeen, Enfield, Kent and Hamburg – are relatively small-scale projects that have defined narrow goals. These goals focus on urban drainage and, accordingly, the delivery of BGI is put central, reflected for example in the term Sustainable urban Drainage System (SuDS). Minor goals could be delivered on the side, such as enhancing recreation opportunities, promoting active transportation modes and ecological preservation. These minor goals may have been implicitly defined in the projects, but they do not form a central part in the project: they are essentially a "nice to have", but not necessarily a "need to have". In general, the projects are led by urban drainage authorities and linked to small plots in the cities (e.g., a park in Enfield or the creations of raingardens along a street in Kent). Overall, the cities in group 1 score relatively low on (working towards) new functional combinations.

The second group of cities – consisting of Bergen, Bradford, Ghent and Gothenburg – entail larger-scale projects related to either urban regeneration or transportation. The projects are driven by regeneration or transportation aims, in which the delivery of BGI plays an important role. For example, Bergen aims to redevelop the former industrial area *Mindemyren* into a residential neighbourhood. BGI form an important element in the final plans, yet the project is driven the creation of a new lightrail line. Similarly, Ghent City Council aims to develop eight green climate axes from the outskirts into the city centre to encourage bike use, which creates opportunities along these axes for BGI. This can also be seen in Bradford, where a new highway scheme is accompanied with the restoration of a local canal. The projects are often led by urban development authorities and relate to complete city districts or transportation corridors. The cases in group 2 score relatively average to positive on (working towards) new functional combinations.

The third and final group of cities consists of Antwerp and Dordrecht. These projects are similar to the second group, encompassing a broad range of goals. Yet, the role of BGI is somewhat different. In Antwerp and Dordrecht, the creation of BGI is used as leverage to foster urban regeneration. To illustrate, Dordrecht City Council had many separated investments planned in the Vogelbuurt neighbourhood related to improving the social cohesion and living conditions as well as to replacing the sewage system. The ambition to create more BGI resulted in a plan to combine these investments into one comprehensive plan: through GI, Dordrecht expects to improve the quality of life in the neighbourhood. Likewise, Antwerp City Council has already ambitions for a long-term to redevelop the left banks of the Scheldt River, which are generally speaking lacking behind the more prosperous right banks. The opportunity to create BGI in this area was seized to also boost the local economic situation and improve recreation facilities. In these cases, BGI become a means to deliver wider policy agendas

while simultaneously urban drainage systems. Therefore, the cases in group 3 score relatively high on (working towards) new functional combinations.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Aberdeen					
Antwerp					
Bergen					
Bradford					
Dordrecht					
Enfield					
Ghent					
Gothenburg					
Hamburg					
Kent					

2. Cutting-cross boundaries

In the background section, we identified five domains that could be involved in BGI projects.

We see that three cities (Aberdeen, Hamburg and Kent) are predominantly located in one policy domain, i.e. within the boundary of urban drainage. This relates to the single goal defined for the project (see element 1). Although wider benefits may be mentioned, the projects are driven by urban drainage authorities. Examples include the Flooding & Coastal department in Aberdeen, LBSG in Hamburg and th Department of Flood & Water Management in Kent.

The second group of cities (Antwerp, Bergen, Enfield and Gothenburg) are driven by authorities that are responsible for either urban planning, environmental management or transportation. In these projects, urban drainage authorities are often one of the disciplines that contribute their knowledge and expertise. To illustrate, the projects in Gothenburg and Antwerp are led by City Planning Offices, while in Bergen transportation departments have a large say. This group of cities has therefore linked different domains, often related to land-use.

The three final cities (Bradford, Dordrecht and Ghent) have also included (or tried to include) the domain of public health and wellbeing. Although the second group of cities may have mentioned public health or social issues, the cities in the third group have more deliberately reached out to include parties representing these issues. For example, Bradford aims to promote active modes of transportation and change behaviour, to which the public health department contributed. In Dordrecht, the urban drainage department reached out to the social welfare department in order to incorporate liveability issues better, which was a new relationship. In Ghent, the project aimed for participatory and inclusive approaches, for which the municipal Social Innovation department was used.

The fifth policy domain of economic development does hardly return in the BEGIN cases. This indicates that economic development through the creation of BGI is not yet realised. As most cases are still in development, this potential could be seized more once the BGI is delivered.

	Business-as-usual				*Social innovation*
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	Five or more disciplines
Aberdeen					
Antwerp					
Bergen					
Bradford					
Dordrecht					
Enfield					
Ghent					
Gothenburg					
Hamburg					
Kent					

3. Compelling new relationships

The BEGIN cases demonstrate in general three types of participation forms, with mixed results of creating new compelling relationships.

First, four BEGIN projects (Aberdeen, Bergen, Bradford, Hamburg) stated overall low participation ambitions and displayed a more traditional, government-led style of working. On the one hand, these cities rely on statutory consultation. On the other hand, a wide array of communicative instruments was used to inform and consult local residents. Examples include formal public hearings as well as more informal community meetings and events. For example, in Aberdeen, consultation took place with local stakeholders in community consultations, such as with the local Fernielea School. To illustrate, school pupils and their parents were involved in choosing different SuDS designs. In Bradford, the wider public was mainly informed through traditional and social media and can provide input during statutory community meetings. In general, face-to-face consultation ("two-way communication") is preferred over "passive" consultation via (online) questionnaires. For consultation meetings, a wide range of communicative instruments can be used to inform residents, such as drawings, 3D-animations and videos, and both social and traditional media. Bergen successfully created a scale model of their regeneration project, which worked well to make the plans concrete and to start discussions with residents. A downside of these instruments was that they may fail to reach everybody within the community. In particular in neighbourhoods without any (formal) community groups known to the authority, respondents argued that it can be challenging to engage with residents. Respondents suggest working with local schools to reach their parents and, subsequently, build up trust and engage with the wider community.

Second, four BEGIN projects (Antwerp, Dordrecht, Ghent, Kent) have been developing partnerships in order to engage with local stakeholders. Some cities, such as Antwerp and Dordrecht, have created distinct experimentation spaces (so-called living labs or pilots) in which local stakeholders, such as

landowners and neighbourhood organisations, are invited to participate. These more collaborative structures aim to create more equal relationships between stakeholders, although public authorities remain the lead partner. Together, these stakeholders have been developing comprehensive urban regeneration plans, in which the local government represents the BGI interests. The use of experimentation spaces help in building coalitions and shared meaning-making, but are difficult to incorporate in regular municipal structures. As such, they can remain distinct projects detached from regular work. In Kent, a community liaison was appointed who could reach out to local communities and establish agreements about the maintenance of the BGI.

Third, the BEGIN projects in Gothenburg and Enfield have established a more facilitative style of working, in which responsibilities are (partially) handed over to communities. Such a style was adopted, so participants felt more incentives to participate, while simultaneously getting freedom. Similar to the second group, organisational instruments were used that led to the creation of partnerships with Friends of the Park groups (Enfield). These instruments facilitated communities to become involved in their locality. Handing over responsibilities to the public did not only stimulate community engagement, but could also lower green space management budgets. Also market-based instruments were used, such as an open call developed by Gothenburg City Council. This call invited architects and artists to develop proposals that would lead to the creation of several prototypes in the *Frihamnen* neighbourhood, which would be co-designed and co-constructed with local residents.

	Business-as-usual				*Social innovation*
Compelling new relationships	Non-participation	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Aberdeen					
Antwerp					
Bergen					
Bradford					
Dordrecht					
Enfield					
Ghent					
Gothenburg					
Hamburg					
Kent					

Social innovation overall

If we combine the scores of the three elements, the BEGIN city partners score as follows:

	Business-as-usual				*Social innovation*
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative
Aberdeen					
Antwerp					
Bergen					
Bradford					
Dordrecht					
Enfield					
Ghent					
Gothenburg					
Hamburg					
Kent					

On average, the BEGIN cases can be considered somewhat socially innovative. Projects driven by single goals score in general a bit lower compared to projects that are driven by wider urban development goals. It should be noted that the projects with broader goals are often still in their infancy, so they still have to live up to their promises to some extent. The projects with smaller goals have often already been delivered.

Factsheet 1: Maidencraig, Aberdeen UK

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Creation of Sustainable urban Drainage Systems in the Maidencraig park, with extensive local involvement (such as from Fernielea School).	Wetlands	Plot	Delivery

1. New combinations

The project is driven by urban drainage aims. The creation of multiple Blue and Green Infrastructure schemes will alleviate flood risks in the Denburn watercourse (as part of the Maidencraig Natural Flood Management Master Plan). Although wider benefits are mentioned, they play a limited role in the prosecution of the project. More explicit aims are defined in regard to the involvement of neighbouring stakeholders, most notably pupils of the adjacent Fernielea School. To illustrate, the Fernielea School Sustainable urban Drainage System Scheme includes educational features for children. Overall, the project concerns the delivery of BGI with a few additional goals that play a limited role.

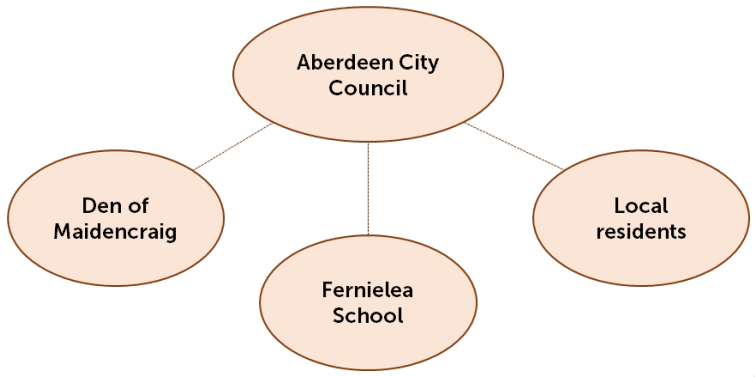
	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					
2	*Education / awareness raising*					
3	*Environmental management*					

2. Cutting-cross boundaries

The project is led by the Flooding and Coastal department of Aberdeen City Council. Other departments, such as Education, Environmental Planning, and Communications and Media, are involved at a distance and play a minor role. The project is therefore located in a single domain: urban drainage.

3. Compelling new relationships

In the project, Aberdeen City Council works together with local residents, visitors of the Den of Maidencraig, and the Fernielea School. The overall participation ambitions are relatively low and involve mainly consultation. The project is legitimised through extensive involvement of local stakeholders. On the one hand, the statutory consultation trajectory is followed. On the other hand, Aberdeen City Council has organised several community meetings and events to raise awareness and gather input. The events were well-attended and attracted attention from the councillor and local media.

	Statutory consultation, community meetings, event with school

Social innovation

As one of the few BEGIN cases, Aberdeen City Council has managed to actually construct new SuDS. At the same time, these SuDS are primarily driven by urban drainage purposes with only some additional educational purposes. The project is therefore driven by a single discipline. The Council has successfully reached out to local stakeholders, such as Fernielea School, yet these interactions often remain one-time events and do hardly move beyond consultation and awareness raising. Consequently, the project scores overall slightly negative in terms of social innovation.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	**Hardly socially innovative**	Somewhat socially innovative	Socially innovative	Very socially innovative

Factsheet 2: Sint-Anneke Plage, Antwerp BE

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Creating BGI in the deprived Sint-Anneke Plage, which can simultaneously provide a socio-economic boost for the city district.	Depavement parking	City district	Design

1. New combinations

The project in Antwerp consists of the Sint-Anneke Plage neighbourhood, located on the leftbanks of the Scheldt river. This area used to be a popular recreation hotspot in the 1950s and 1960s, but is currently an area in decay. Because of its abundant green space, Antwerp City Council considered this neighbourhood promising for the delivery of BGI. The construction of BGI is used as leverage to realise simultaneously urban redevelopment and improve the socio-economic situation in the neighbourhood. Accordingly, the project fits with wider aims to upgrade the Left Banks of the Scheldt River. Altogether, the project consists of multiple goals that are linked to BGI delivery.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					
2	*Urban redevelopment*					
3	*Environmental management*					
4	*Public health and wellbeing*					

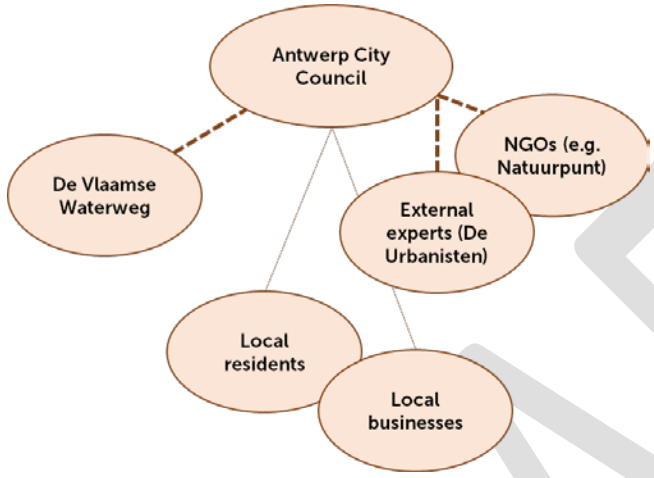
2. Cutting-cross boundaries

The project is driven by the Spatial Development department of Antwerp City Council and supported by the municipal CityLab2050 team. By positioning the project as an urban living lab, different municipal departments related to urban development and environmental management could work more easily together. The CityLab2050 team provided external experts that facilitated the process. The project is therefore located in three disciplines: urban drainage, urban redevelopment and environmental management.

3. Compelling new relationships

The urban living lab was used to bring together stakeholders with different viewpoints and work together as partners (albeit funded by City Council). Antwerp City Council involved local landowners, such as De Vlaamse Waterweg, NGOs, and local residents and businesses. Stakeholders could provide

local knowledge and their viewpoints on the developments. Through the CityLab2050 department, external experts from consultancies and universities participated, which stimulated creative outcomes. The living lab setting helped to establish a social network and mutually develop a plan to which the different stakeholders are committed. Also, the issue of climate adaptation was firmly put on the agenda. Yet, the actual implementation of the plans remains unsure, due to political changes. The lab also requires vast resources (human, time, finances).

	Events as part of the urban living lab, such as a Design Sprint.

Social innovation

The project in Antwerp is still its early stages. Large investments have been put into place for the living lab and a social network has been developed. The incorporation of multiple goals resulted in a comprehensive plan, but is difficult to deliver. Although the living lab was useful for developing ideas, the setting did not yet lead to political and administrative support. Overall, the project is rated as socially innovative. The proof of the pudding, however, is in the eating, so the high ambitions still have to be realised.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	**Socially innovative**	Very socially innovative

Factsheet 3: Mindemyren, Bergen NO

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Construction of a lightrail and redevelopment of a former industrial area into a residential area, including creation of green infrastructure	Raingardens; Redevelopment canal	City district	Design and delivery

1. New combinations

The project in Bergen centres on the urban redevelopment of the *Mindemyren* district. The construction of a lightrail from the city centre to this neighbourhood is a central element in the project. As part of the urban regeneration, a currently hidden river will be restored that should contribute to the area's quality of life, while simultaneously being able to discharge and store more rainwater. Thus, BGI is presented as an important means to stimulate urban regeneration. Altogether, the project has ambitious goals in which BGI plays an important role.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban redevelopment*					
2	*Lightrail construction*					
3	*Urban drainage*					
4	*Public health and wellbeing*					

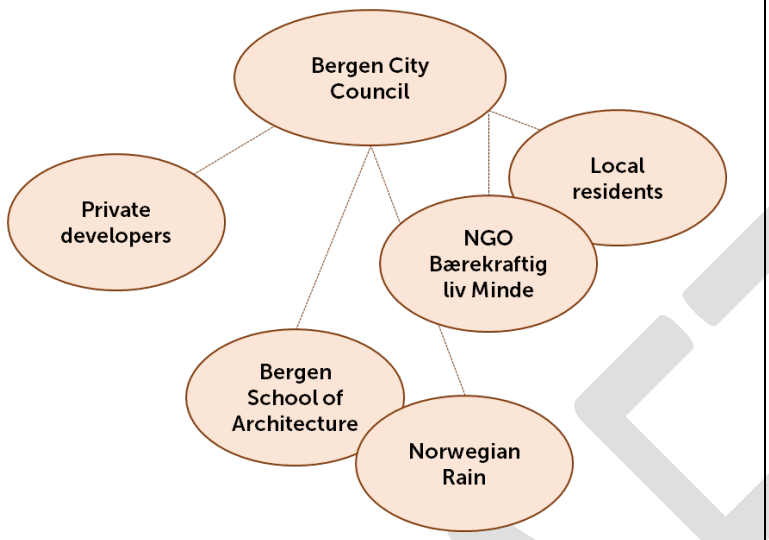
2. Cutting-cross boundaries

The project is led by the Urban Development department of Bergen City Council. Since the real estate and transportation aims are most important, the departments representing these aims steer the agenda. These departments are driven by sectoral goals, although cross-departmental working is embraced. Departments responsible for BGI, such as Environmental Management and Wastewater Engineering, have limited means to set and steer the agenda, so there is a chance that other disciplines overrule BGI objectives. Nevertheless, four disciplines are present in the project.

3. Compelling new relationships

Bergen City Council has formulated rather low participation ambitions. For the project, information provision and consultation is considered sufficient. To this end, community meetings have been organised and the City Council has developed a wide range of communicative instruments. Examples include videos, online and offline communication, and the development of a scale model. Especially the

scale model works well to show the plans and it allows stakeholders to play with it. Despite the set of instruments, the Council finds it difficult to reach everybody within the community.

	Consultation and community events.

Social innovation

The project in Bergen has high ambitions to deliver an integrative project that encompasses urban regeneration, lightrail construction, urban drainage improvements, and public health improvements. Accordingly, many different municipal departments are involved, but the real estate developments and lightrail construction seem to dominate. In reaching out to other stakeholders, Bergen City Council relies on more traditional consultation forms, expanded with new forms of communication such as a scale model. Altogether, this results in a project that can be rated as somewhat socially innovative.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	**Somewhat socially innovative**	Socially innovative	Very socially innovative

Factsheet 4: Bradford Beck, Bradford UK

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Restoration of the Bradford Beck, a small (and currently largely hidden) river system through the City of Bradford. Related to the Bradford Shipley Route Improvement Scheme that aims to upgrade the main roads between Bradford and Shipley.	River restoration; raingardens	Corridor	Design

1. New combinations

The Bradford project is driven by transportation goals as part of the Bradford Shipley Route Improvement Scheme. Along this Scheme, Bradford Metropolitan Council aims to upgrade the wider corridor. One key element is the restoration of the Bradford Beck that runs parallel of the route, in which BGI will return. The restoration should contribute to a more liveable area for neighbouring tenants, biodiversity improvements, and better opportunities for active modes of transportation.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Transportation*					
2	*Urban drainage*					
3	*Public health and wellbeing*					
4	*Environmental management*					

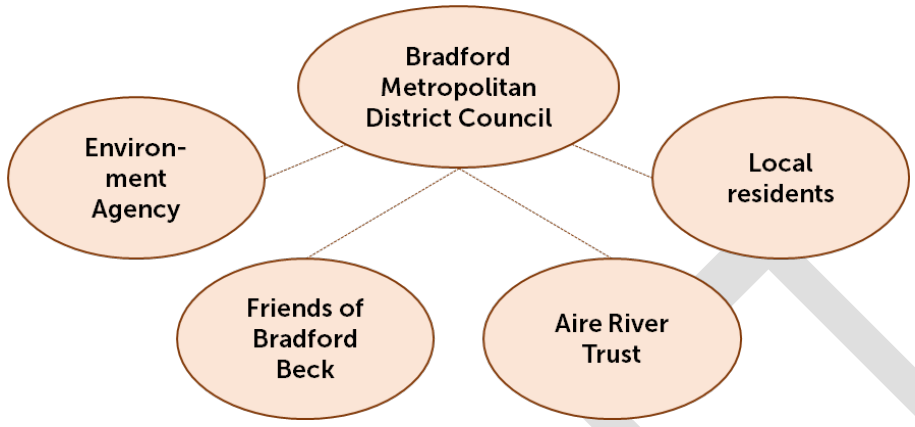
2. Cutting-cross boundaries

The Planning, Transportation and Highways department of Bradford Metropolitan Council leads the project. The transportation goal dominate; other goals follow a parallel track, in which departments such as Parks and Landscape, Engineering, and Public Health participate. As a result, four disciplines are working on the project.

3. Compelling new relationships

Bradford Metropolitan Council sticks to more traditional consultation in regard to participation. More informal engagement with local stakeholders and neighbourhood organisations occurs through community events. This allows for flexibility and more in-depth engagement, but getting a full representation of communities is difficult. Also, the community living nearby Bradford Beck is not yet

established, so institutionalised actors do not yet exist. This can complicate the identification of potential stakeholders.

	Consultation and community events.

Social innovation

The project in Bradford has high ambitions for delivering a comprehensive project, although the transportation goal dominates. In parallel, environmental restoration can take place that will benefit local communities and can stimulate active modes of transportation. Many municipal departments are involved. Participation ambitions are somewhat low, using statutory consultation and community events. The project is therefore assessed as somewhat socially innovative.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative

Factsheet 5: Vogelbuurt, Dordrecht NL

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Upgrading the *Vogelbuurt* neighbourhood, which faces flood risks and social problems, through the creation of BGI	Raingardens, wetlands.	Neighbourhood	Design

1. New combinations

Major investments are planned in the *Vogelbuurt* neighbourhood, such as the replacement of the sewage system and large-scale renovation of the social housing stock. In the project, BGI is framed as the element that can connect the sectoral investments, thus being a catalyst that enables an integrated project. BGI could enhance the area's liveability and improve public health and stimulate recreation. In conclusion, BGI is used as leverage that could improve the Vogelbuurt significantly. Yet, there is no funding secured for BGI itself.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					
2	*Urban redevelopment*					
3	*Environmental management*					
4	*Public health and wellbeing*					

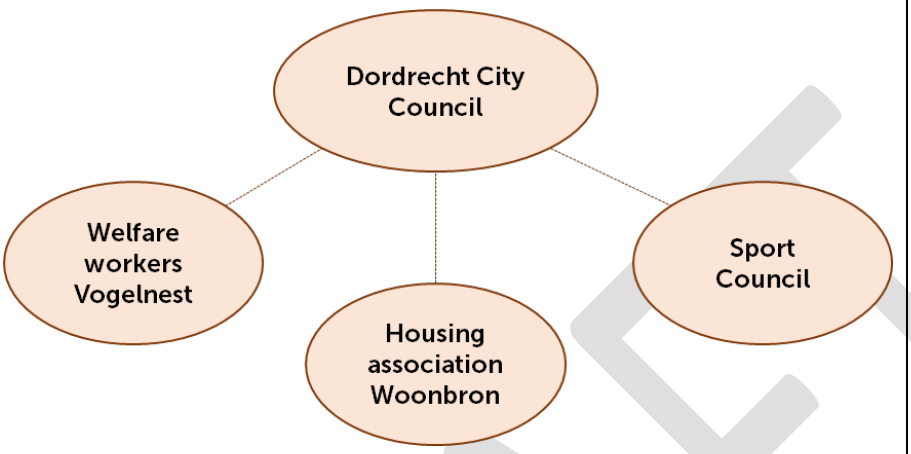
2. Cutting-cross boundaries

The *Vogelbuurt* project is led by a small team of Dordrecht City Council that is dedicated to "creating a blue-green city". This team needs to work together with regular departments, such as urban development, urban drainage, social welfare, and environmental services. Together, the project entails four disciplines. Each department has its own allocated financial resources, which the dedicated team tries to combine into a shared project budget.

3. Compelling new relationships

Dordrecht City Council started an urban living lab, in which the "blue-green city" team aimed to partner with fellow municipal departments and neighbourhood organisations, such as the housing association and local welfare workers. This partnership was initially a loosely coupled network. Through an application for a European subsidy, the team tried to formalise the partnership, but the funding was not granted. The broad network of partners would create a more legitimate project, but also for the small

team a means to get access to more financial resources. Partners in the living lab were enthusiastic about the ideas and the formulation of shared ambitions, yet the lab was discontinued. Securing funding for a longer period of time remains a challenge, as well as involving stakeholders that may have less affinity with BGI.



Urban living lab with several workshops.

Social innovation

The project in Dordrecht is aiming to create an integrated project for the neighbourhood in which the BGI holds the sectoral investments together. Many disciplines, both from the physical-environmental and social domains, work together, yet without formal obligations. Also, high ambitions exists to start partnerships with neighbourhood organisations. The open-ended character of the living lab and the reliance on external funding make the project vulnerable. Nevertheless, the project scores high on the three elements, making it a socially innovative project.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative

Factsheet 6: Broomfield Park, Enfield UK

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Improve the Pymmes Brook catchment (developing Sustainable urban Drainage System and recreation opportunities), co-management by local community	Wetlands, raingardens	Small-scale	Maintenance

1. New combinations

Enfield London Borough Council has realised wetlands in Broomfield park, as part of improvements of the Pymmes Brook catchment. Other, smaller objectives were linked to this scheme, such as public health improvements and social cohesion. The newly constructed wetlands also improved ecological values in the park.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					
2	*Public health and wellbeing*					
3	*Environmental management*					

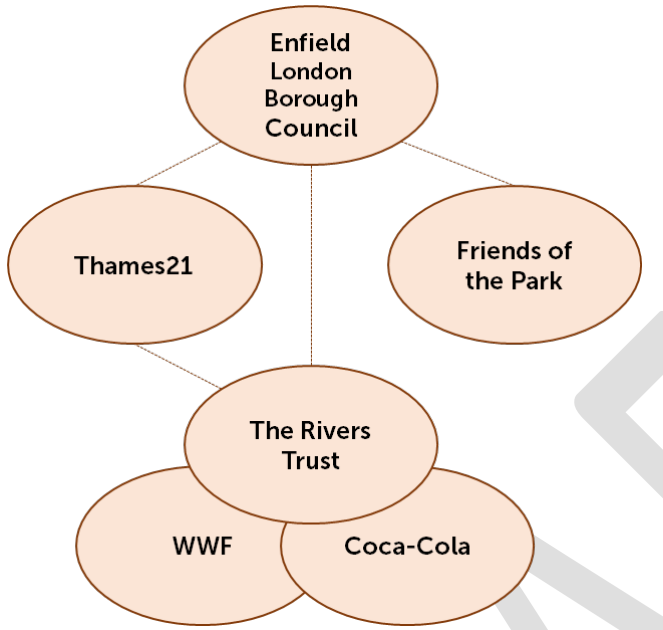
2. Cutting-cross boundaries

The project is led by the Highway Services of Enfield Council in close co-operation with the Parks Department. Other domains that are involved include transportation, urban planning, and housing. Accordingly, three domains are involved: urban drainage, urban regeneration and environmental management.

3. Compelling new relationships

Enfield Council has established three types of relationships with stakeholders. First, Enfield Council has established a partnership with the Rivers Trust, WWF and Coca-Cola that secured financial resources for the implementation of the plan. Second, partnerships with community groups (such as Friends of Broomfield Park) were started in order to hand over responsibilities of the Broomfield Park management. This would benefit social cohesion, but would also lower maintenance costs. Third, community events were organised in order to raise awareness about the need for BGI. These events can be good PR for the authority. Also online information was distributed, but misunderstandings can quickly proliferate. Altogether, Enfield Council managed to reach out to other stakeholders and start

formal partnerships with them. Moreover, some responsibilities regarding the maintenance have been handed over to communities.

	Partnerships with community groups and institutionalised actors; and community events.

Social innovation

The project is mainly driven by the creation of BGI, with some additional features. As a consequence, the project remains largely within the scope of urban drainage and urban development. Most innovative are the new relationships established with both institutionalised actors such as Coca-Cola and community groups. In conclusion, the project ranks as somewhat socially innovative.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative

Factsheet 7: Groenas, Ghent BE

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Green axes	Undefined	Corridor	Design

1. New combinations

Ghent City Council aims to deliver eight green axes between the city centre and outskirts. These axes are predominantly constructed to promote active modes of transportation (cycling, walking) and improve public health and wellbeing. Moreover, the green corridors can promote biodiversity. In order to create a green axis, the project aims to connect already existing green spaces with each other, such as small plots and parks. BGI is an important part of the green axes and can easily be connected to the other aims.

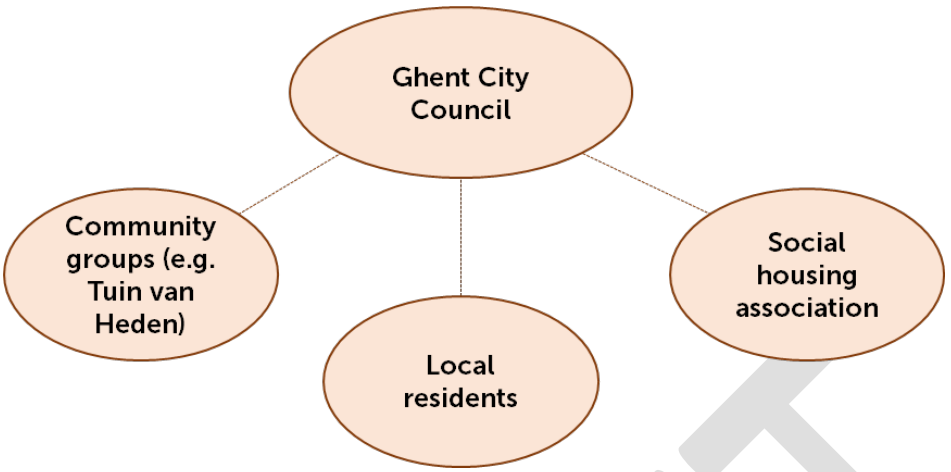
	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Mobility*					
2	*Environmental management*					
3	*Urban drainage*					
4	*Public health and wellbeing*					

2. Cutting-cross boundaries

The project is led by the Department of Green Space management of Ghent City Council. In addition, the related domains of urban planning, environmental management, and mobility are involved. A final important department is the Social Innovation department that helps to reach out to stakeholders living nearby the green axis. Altogether, four disciplines are involved in the project.

3. Compelling new relationships

The project in Ghent is still in its infancy. Local stakeholders are identified, but not yet approached.

	Community events and partnerships with stakeholders living adjacent to the Green Axes

Social innovation

The project is mainly driven by transportation and biodiversity aims, to which BGI can contribute. The project is ambitious both in geographical scope (a complete corridor), in domains (environmental management, urban regeneration and urban drainage), and in stakeholder involvement through socially innovative ways. However, the project is currently in the early stages, so no concrete results can be shown yet.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	**Socially innovative**	Very socially innovative

Factsheet 8: Frihamnen, Gothenburg SE

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Redevelopment of a former harbour area into a residential and business area, including the creation of BGI	Small prototypes	Neighbourhood	Design

1. New combinations

Gothenburg City Council aims to redevelop the *Frihamnen* district from an industrialised harbour area into a residential neighbourhood. As a first step, the City Council is creating a Jubilee Park as part of Gothenburg's 400-year-anniversary in 2021. The Jubilee Park is developed in close co-operation with local residents through a *placebuilding* approach. *Placebuilding* is an approach that invites citizens to help with the construction of the park, so the currently unhabited district becomes "activated" and known in the city. Central in the project are several prototypes, which are temporary installations on the site. They are co-constructed with residents and can be improved over time. Successful prototypes are likely to return in the final Jubilee Park. The construction of BGI is an important part of the full project. By creating prototypes of BGI in the park, local residents can become aware of the need for BGI and experience its benefits.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban regeneration*	■				
2	*Public health and wellbeing*		■			
3	*Urban drainage*		■			

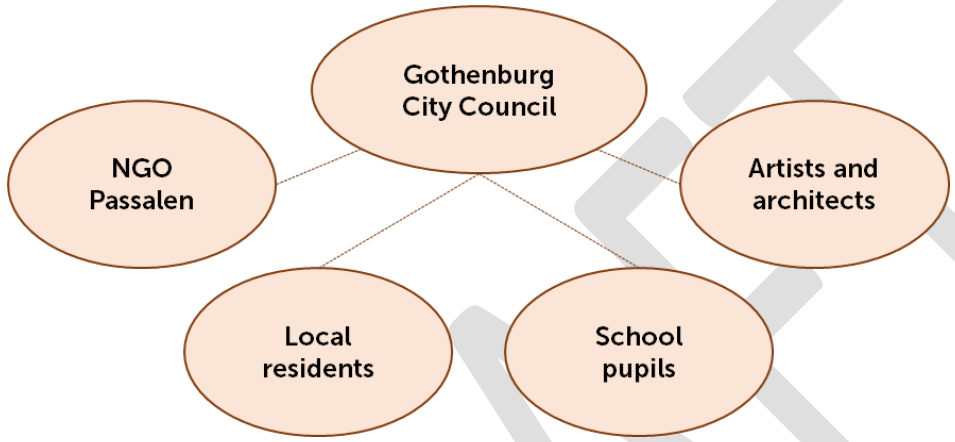
2. Cutting-cross boundaries

The project of the Jubilee Park is led by the City Planning Office of Gothenburg City Council and the public enterprise River City Company, which owns the land in *Frihamnen*. For the project, new project leaders were hired that had ample experience with participatory art projects and prototype development. In addition, also the Water & Sewage Department, and the Parks & Nature Department participate in the project. Therefore, three disciplines are present in the project.

3. Compelling new relationships

The project team consisting of the City Planning Office and the River City Company has relatively much freedom and resources in developing prototypes in the park and organising community events. The *placebuilding* approach was operationalised through open calls to architects and artists, who were asked

to develop participatory art projects based on suggestions from residents. For example, one suggestion was to do something with "bathing culture". An architecture firm consequently developed a prototype for a sauna, which was co-constructed with local residents. As such, the project team facilitated artists and residents to co-create their living environment: the Jubilee Park is not only *aimed for* residents, but also *developed with* residents. Many residents have been involved and subsequently shown the results to their peers. As a result, the sauna has become a popular destination for residents around the city, which has put *Frihamnen* on the map. Also local schools visit the area for outdoor classrooms.

	Open calls for participatory art projects that involve local residents and neighbourhood organisations

Social innovation

The project in *Frihamnen* can be considered a good example of co-creation of government, NGOs, and residents. By hiring artists, innovative prototypes have been developed and *Frihamnen* and its Jubilee Park have become a popular place in the city. The project's strategic aim relates to urban regeneration, in which BGI played an important role. The project has handed over responsibilities to artists and residents through open calls, resulting in new compelling relationships. Together, the project can be assessed as socially innovative. The current challenge is how to continue with the successful prototypes, which were designed and built for a period of about five years. Now the Jubilee Park will be built, the question is how these prototypes will return.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	Hardly socially innovative	Somewhat socially innovative	**Socially innovative**	Very socially innovative

Factsheet 9: Hamburg DE

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
???	Raingardens	Plot	Delivery

1. New combinations

The project in Hamburg centres on urban drainage through the construction of Sustainable urban Drainage Systems at small-scale plots.

	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					

2. Cutting-cross boundaries

The project is led by Agency for Roads, Bridges & Waters, City Districts (LBSG). Responsibilities concerning water management are fragmented in Hamburg. As a consequence, LBSG tries to create awareness among other municipal actors for (the impacts of) BGI, but getting “a seat at the table” is difficult. The project is therefore currently located within the single discipline of urban drainage.

3. Compelling new relationships

LBSG aims to promote BGI solutions in the planning process, which is instrumental for realising LBSG’s own targets. To this end, LBSG mainly raises awareness among other public actors, but this does not address the current fragmentation. BGI solutions would require a more fundamental re-organisation of urban drainage responsibilities. Wider stakeholder involvement – outside the local government – is not part of the project.

None.	

Social innovation

The project in Hamburg is focused on small-scale BGI and stays within the discipline of urban drainage, since linkages with other departments and stakeholders are difficult to establish. Furthermore, LBSG barely reach out to other stakeholders. Accordingly, this project mirrors a more traditional, engineering-driven take on urban drainage that can be considered not socially innovative.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	**Not socially innovative**	Hardly socially innovative	Somewhat socially innovative	Socially innovative	Very socially innovative

Factsheet 10: George V Park & Bell Road, Kent UK

Introduction to the project

Description	*Planned BGI*	*Scale*	*Phase*
Developing sustainable urban drainage systems at two sites	Raingardens	Plot	Delivery and maintenance

1. New combinations

Kent County Council aims to deliver SuDS at various locations within the administration. Moreover, Kent County Council aims to involve local residents in the maintenance of these measures. The projects of George V Park and Bell Road therefore concentrate primarily on urban drainage with smaller additional goals related to public health and wellbeing improvements for local residents.

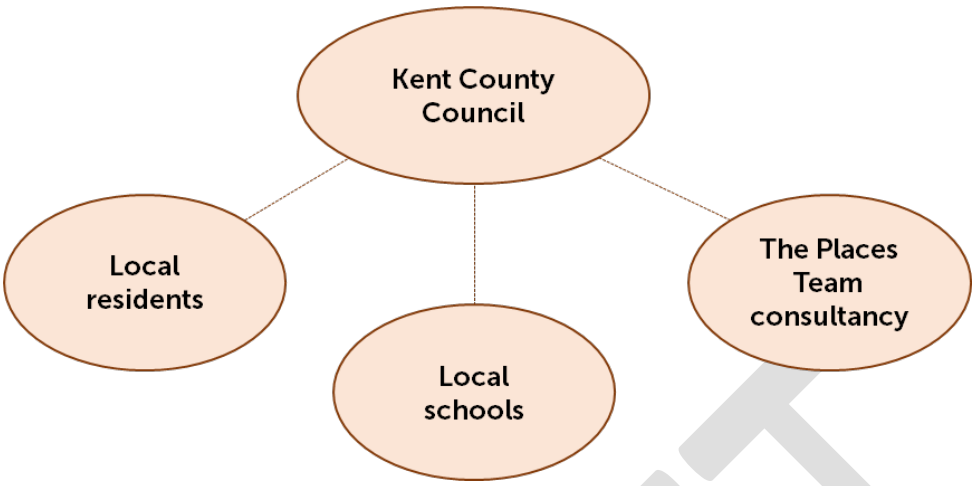
	Goals	***Primary aim***	***Important aim***	***Intermediate aim***	***Limited aim***	***No aim***
1	*Urban drainage*					
2	*Public health and wellbeing*					

2. Cutting-cross boundaries

The construction of the BGI is the responsibility of the Flood & Water Management Department of Kent City Council. This department works closely together with Kent Highways. Therefore, the project remains within the boundary of urban drainage.

3. Compelling new relationships

Kent City Council has employed two types of instruments to involve local stakeholders. First, community events and the appointment of a community liaison helped to bridge the worlds of the engineers and the community. Accordingly, a dialogue with communities has been started, but conflicting priorities can generate tensions. Second, Kent City Council provides small financial support to help local organisations take over the maintenance of BGI using partnerships. This requires tailor-made solutions and funding needs to be secured for a longer time period, as communities are less likely to participate without a financial reward. The partnerships and community dialogue help to create a sense of ownership among residents.

	Community events, partnerships with community groups

Social innovation

The project in Kent concerns small-scale examples of BGI, which therefore stays largely within the discipline of urban drainage. Linkages with other departments have not yet been established and wider goals are not defined. However, Kent City Council has put a lot of energy in creating new relationships with local stakeholders through partnerships and a community liaison. Although long-term relationships remain challenging, the new forms of participation result in a more socially innovative project. Nevertheless, the project is assessed as hardly socially innovative, because its orientation towards urban drainage.

	Business-as-usual				*Social innovation*
New combinations	Project mainly consists of BGI delivery	Project consists of BGI delivery with minor additional goals	Project consists of multiple goals of which one intermediate goal is BGI delivery	Project consists of multiple goals of which one important goal is BGI delivery	Project consists of multiple goals of which BGI delivery is used as leverage to realise other goals
Cutting-cross boundaries	Single discipline: urban drainage	Two disciplines	Three disciplines	Four disciplines	
Compelling new relationships	Information provision	Consultation	Partnerships	Facilitation (handing over responsibilities)	Self-organisation by community
Overall score	Not socially innovative	**Hardly socially innovative**	Somewhat socially innovative	Socially innovative	Very socially innovative

Contact

This report presents the social innovations developed by BEGIN city partners for delivering Blue and Green Infrastructure. The factsheets are based on (1) the questionnaire distributed in 2018, (2) the workshop on policy instruments in 2019, and the (3) the workshops for the policy brief in 2019.

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