VALUE INTEGRATION FOR DELIVERING BLUE AND GREEN INFRASTRUCTURE:

Balancing technical, spatial, social and sustainability values

Policy Brief from the Interreg North Sea Region BEGIN project

BACKGROUND TO BEGIN

The Interreg North Sea Region project BEGIN (2017-2021) aims to deliver Blue and Green Infrastructure through Social Innovation. The project is a unique partnership in which 10 cities and 6 research institutes combine forces to develop Blue and Green Infrastructure solutions (BGI) and exchange experiences. The urgency to construct BGI is growing, because climate change and urbanisation impact the resilience of our cities. To illustrate, we are faced with the increasing risk of local floods impacting our communities and urban environment, because drainage systems are struggling to cope with more frequent and intense rainfall. Moreover, cities increasingly experience a loss in biodiversity, feel the urgency of addressing heat stress and periods of drought, and want to promote citizens' health and wellbeing, to which BGI can contribute.

The utilisation of BGI can provide numerous opportunities when compared with traditional grey infrastructure to capitalize on multiple benefits and engage stakeholders, since BGI integrates (urban) drainage into and with disciplines such as urban design, city planning, environmental management and public health. Through BEGIN, 10 cities in the North Sea area are developing and implementing social innovation approaches in order to pursue the opportunities BGI offers in different BGI-oriented cases of varying scale and function, since up until now exploitation of these opportunities has been often overlooked. The BEGIN-project helps cities to identify, plan, value and deliver the benefits to those that could get the most from them. Likewise, BEGIN has supported cities in engaging stakeholders, including citizens, in a design process that could significantly enhance the liveability of their neighbourhoods.

Photo: Dordrecht, the Netherlands

BGI VALUES AND VALUE INTEGRATION

Blue and Green Infrastructure (BGI) utilises natural and nature-based systems, providing multi-functional blue and green spaces in cities such as green roofs, water plazas or rain gardens that aim to make cities more climate-proof[1]. It is a promising route to climate adaptation, while also benefiting society in many other ways. The multi-functionality of BGI facilitates the integration of societal goals. BGI does not only offer technical solutions for water management benefits (e.g. improvement of urban drainage), but can also improve the spatial quality of the living environment (e.g. green spaces), improve the environment from a sustainability perspective (e.g. biodiversity), and social aspects (e.g. social inclusion and health/wellbeing). Economic benefits are also apparent, for example in property value and energy savings.

Blue and green infrastructure projects thus try to bundle a variety of values. Value integration means the coming together of different values of different stakeholders, for the benefit of society, making our world more secure, smart, shared, sustainable and satisfying[2].

---

1 *Demuzere, M., Orru, K., Heidrich, O., Olazabal, E., Geneletti, D., Orru, H., ... & Faehnle, M. (2014). Mitigating and adapting to climate change: Multi-functional and multi-scale assessment of green urban infrastructure. Journal of Environmental Management, 146, 107-115.*
2 *Visser, W. (2017). Integrated value: What it is, what it's not and why it's important. Huffington Post, 9(30), 2017*

BGI VALUES AND VALUE INTEGRATION

In delivering traditional grey infrastructure technical and spatial values have been prominent[3]. In addition, in traditional forms of water management, in which the government is the main initiator, financier and decision-maker of the measures taken, classical, democratic values such as state sovereignty, public authority, legality and impartiality dominate[4]. With BGI, the spatial claims become more elaborate. Besides space for technical, often underground facilities and space for roads, railways and waterways, BGI also claims space for social values (e.g. an inviting living environment through sports fields), sustainability values (e.g. creating awareness through water in playgrounds or water squares) and other spatial values (e.g. more greenery). With BGI, social- ,sustainability and new spatial values are added to the mix.

Technical values		Social Values	
Water storage Separation of drinking and waste water Instrumental values Safe & Secure	Information/Data System standards Technical innovation Measurability	Social cohesion Livability Housing Health & Wellbeing	Recreation, sport, leisure Equality Diversity Inclusion
Physical/Spatial values		**Sustainability/Environmental values**	
Green space Use value Functionality Quality	Image/Appearance Accessibility Context Maintenance	Climate adaption Future value Biodiversity Ecosystems	Circularity Environmental CO_2 emission Energy use

---

3 *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.*
4 *Edelenbos, J., van Meerkerk, I., & Koppenjan, J. (2017). The challenge of innovating politics in community self-organization: The case of Broekpolder. Public Management Review, 19(1), 55-73.*

BGI VALUES AND
VALUE INTEGRATION

Level of value integration

A single value strategy means that a company (private or public) focuses on one innovation goal, but does so at an incremental pace. Improvements are sought, but without disrupting the business as usual. In this case, values are not brought together and there is no value integration. Separation in managing values takes place, either in time – one first, than the other -, or in the organizational structure - by placing elements in different compartments – for example separating the spatial domain in a development and management department with their own objectives.

Value integration can take different forms, ranging from alignment to true/full integration. Its about the type of value created. Applied to management practices three levels of value creation can be distinguished: aligned, coordinated and integrated[5].
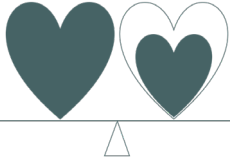
A first form of value integration is alignment (is most common in BGI). Aalignment refers to a parallelization of the systems where the similarities of the standards are used to structure the system, increasing compatibility, and combining the standards into a management document. Compatibility is the capacity for two systems to work together without having to be altered to do so.

5 *Jørgensen, T. H., Remmen, A., & Mellado, M. D. (2006). Integrated management systems – three different levels of integration. Journal of Cleaner Production, 14(8), 713–722. / Besharov, M. L., & Smith, W. K. (2014). Multiple institutional logics in organizations: Explaining their varied nature and implications. Academy of management review, 39(3), 364-381. / Stoker, G. (2006). Public value management: A new narrative for networked governance?. The American review of public administration, 36(1), 41-57.*

BGI VALUES AND
VALUE INTEGRATION

Thus to what extend the various values that may be brought together can exist together, are not conflicting. This degree of value integration combines values, but separate procedures remain. Blue Green Infrastructure is usually a responsibility of the urban water management domain at the local government level[6]. A pitfall, however, is that broader benefits of BGI are often added as an additional goal to existing ambitions, and then to some extent lost to other goals, such as financial feasibility and construction goals[7].

Fragmented	Aligned	Coordinated	Integrated
Separation	Corresponding	Coherent	Inherent
Single value (either/or)	Combined value	Balanced value	Added value
Values are achieved separate. Division in time: first one then the other/ Division of tasks: we do this, you do that.	Values are added as an extra objective to existing ambitions and are then trade-off amongst each other. There are always winners and losers.	Values are combined, do not get in each other's way significantly so that each value reaches at least a basic standard.	Added value is achieved when the integration of values leads to enhanced value for each objective within the integration.

6 *Farrelly, M., & Brown, R. (2011). Rethinking urban water management: experimentation as a way forward?. Global Environmental Change, 21(2), 721-732.*
7 *Rauken, T., Mydske, P. K., & Winsvold, M. (2015). Mainstreaming climate change adaptation at the local level. Local Environment, 20(4), 408-423. / Willems, J. J., Kenyon, A. V., Sharp, L., & Molenveld, A. (2021). How actors are (dis) integrating policy agendas for multi-functional blue and green infrastructure projects on the ground. Journal of Environmental Policy & Planning, 23(1), 84-96.*

BGI VALUES AND VALUE INTEGRATION

The next step towards true value integration is coordination. Coordination is the process of organizing people or groups so they provide a unity of action. Internal coordination is mainly aimed to reduce potential trade-offs. This leads to a "weighted balance" of values, which could quickly degenerate into the pursuit of the sum of individual customer desires.

Full integration means that the whole is greater than the some of the parts. Here, added value is sought beyond formal rationales with its typical cost-benefit and multi-criteria approaches. Alternatively, a culture of learning is created, stakeholder participation and continuous improvement. Added value is achieved when the integration of values leads to increased value for each objective within the integration.

GOVERNANCE INNOVATION FOR VALUE INTEGRATION

Achieving true value integration comes with many, different challenges. This is because various (types of) values are conflicting by nature[8]. Most tensions in BGI exist between more traditional technical and spatial values in contrast to social and sustainability values. This is because public as well as societal values can be incompatible, therefore the pursuit of certain values will inevitably require comprise or limit the ability to pursue other values. E.g. innovation takes often more time in the preparation phase and is considered less efficient. Furthermore, because public values can be incommensurable, there is no single currency or scale with which to measure conflicting values. E.g. time efficiency is measured in labour hours and quality in load baering capacity. And that the 'measurability' can take different timeframes, e.g. sustaianability is about the life cycle of products and usability is a current issue. An additional difficulty is that certain groups of public values are difficult or impossible to make measurable, and remin subjective in their assessment, e.g. 'beauty'. And values may have different interpretations. Therefore, where a conflict occurs, no rational assessment can be made. In the sectoral practice of many public client organizations values are separated in by (accountability) structures, professions and in policy, which complicates integration. Also the project-based character and pilot status of many BGI initiatives makes integration both in the project and the parent organization more of a challenge[9].

8 de Graaf, G., & Paanakker, H. (2014). Good Governance Performance Values and Procedural Values in Conflict. The American review of public administration, 45(6), 635-652.
9 Van Buuren, A., Vreugdenhil, H., Van Popering-Verkerk, J., Ellen, G. J., van Leeuwen, C., & Breman, B. (2018). The Pilot Paradox: Exploring tensions between internal and external success factors in Dutch climate adaptation projects. In Innovating climate governance: Moving beyond experiments (p. 145). Cambridge University Press.

GOVERNANCE INNOVATION
FOR VALUE INTEGRATION

Consequently, to achieve the multi-functionality of BGI's, it is up to the policymakers and public managers of the cities to integrate different or contradictory public values in realizing BGI projects. Striving for the multi-functionality of BGI's means that public, private, and social organizations and individuals need to get involved. For BGI project two ideal typical extreme governance approaches to value integration can be distinguished: top-down bureaucratic/institutional innovation followed by implementation, and bottom-up social innovation aiming to create organizational support during the process of project delivery.

In bureaucratic innovation, value integration often takes the form of policy integration. Policy integration is defined by Tosun and Lang "policy-making in certain domains that take policy goals of other, arguably adjacent, domains into account". The multifunctional nature of BGI brings together goals from different policy domains. For example, existing ambitions related to climate adaptation can be complemented by new goals that, for example, improve health and well-being or provide recreational opportunities. Integrating policy goals can be challenging due to financial feasibility and mismatched timelines. With policy integration institutions provide policy actors with such a coherent and simplified set of objectives that potential conflicts do not arise in the first place and/or establish clear mechanisms on how to translate conflicting goals in policy choices . Policy integration is an activity taking place at the strategic decision-making level, so value integration as bureaucratic innovation takes place here and has subsequently to find a way through the organisation to get implemented.

10 *Tosun, J., & Lang, A. (2017). Policy integration: Mapping the different concepts. Policy studies, 38(6), 553-570.*
11 *Thacher, D., & Rein, M. (2004). Managing value conflict in public policy. Governance, 17(4), 457-486.*

Value integration as social innovation, on the other hand, can take place at different levels, but has a more bottom-up character - within the organization or in an (internal-external) network - and seeks to ensure that the value integration being pursued is picked up by the organization and mainstreamed throughout the organization. Bottom-up social innovation goes further than crossing various governmental boundaries and creates joint public value by involving different stakeholders and engaging with various value systems. Social innovation (SI) includes active contributions from consumers, citizens and organizations that go beyond the actors of a traditional grey infrastructure project. Internally, SI means the crossing of boundaries, the integration of different policy domains within local governments. Externally, SI means creating compelling new relationships through greater stakeholder involvement[12]. It refers to new approaches to addressing societal challenges that come about through networking and joint action in social domains, beyond the systemic world of government and the business logic of business. Technical, physical, social and sustainability values thus come together. Through which governments strive to achieve broader goals for both public and private parties[13].

Different combinations of elements if these two extremes lead to many different governance approaches. There is no one-size-fits-all solution, different approaches lead to different levels of value integration for each unique situation.

12 *Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). Social innovation: what it is, why it matters and how it can be acceler-ated.Oxford: Skoll Centre for Social Entrepreneurship, University of Oxford.*
13 *Karré, P. M. (2018). Navigating between opportunities and risks: The effects of hybridity for social enterprises engaged in social innovation. Journal of entrepreneurial and organizational diversity, 7(1), 37-60.*

MAIN LESSONS

The BEGIN projects support the main lessons on value integration pathways. These integration pathways involve governance innovation by creating public value – in the form of blue and green infrastructure to achieve climate adaption goals through technical, spatial, or social activities at the interface of government, market and society. This implies pursuing value integration through the translation of programme, procurement and process goals at the local level.

We set out recommendations to ensure value integration for delivering blue and green infrastructure:

1. From business as usual to early involvement of actors from other domains
2. From a product to a process understanding of value integration
3. From the project perspective to the district/neighbourhood perspective.
4. From a procedural focus on integration to a professional approach towards integration
5. From 'lead' value to multiple value perspective
6. From integration as non-committal to formal safeguards

The next pages will discuss the recommendations in detail, by discussing the challenge and providing practical advice in the form of conditions for value integration, backed up with evidence from the BEGIN partners and their pilot projects. After which we will discuss what this means in terms of balancing between bureaucratic/institutional and social innovation.

RECOMMENDATION ONE
From business as usual to early involvement of actors from other domains

THE CHALLENGE:
Business as usual in a traditional industry

Current urban public service delivery takes place in a highly traditional and sectoral construction industry in which separation of tasks takes place, either in time – by addressing one task in an early phase and then another task in the next phase, for example by first designing than bidding and that constructing, or in the organisational structure –by placing tasks in different compartments, for example dividing the spatial domain in a department for new development and a management department[14].

In a highly traditional and sectoral construction industry, procedural values – like accountability - and performance values – like measurability – are firmly embedded in the project delivery processes and traditional construction professions[15]. Within the municipality/city (internally), for example more traditional professions – that are also apparent in grey infrastructure delivery processes – like water safety and sewage are consulted in the initiative phase and become dominant actors in decision-making. The BEGIN cases show that actors dealing with social (shared ownership and social cohesion) and sustainable (climate and future proof) issues experience that they must continually fight for their place in such a process. For example sports associations are more successful when aligning their ideas with ongoing projects. **In "business as usual", social and sustainability aspects are often considered only in the end of the project delivery process. At that time, the project objectives are already fixed and the delineations are made from a technical and spatial perspective.** This often leads to outcomes in which social and sustainability values lose out to technical and spatial issues. **The BEGIN cases show how, despite the good intention, social and sustainability values are often only tried to add-on in later stages.**

CONDITION FOR VALUE INTEGRATION:
Timely involvement of social and sustainability actors

In order to integrate technical, spatial, social and sustainability values different perspectives need to be involved in decision-making. The decision-making with most impact traditionally takes place at the early stages of the project delivery process, when the scope and ambitions of a project are defined. Assignments that take into account different perspectives, can create room for creativity and value integration during the entire process. Possible future conflicts can be identified and anticipated on. **Timely involvement of social and sustainability professions in the early phases of decision-making on planning, infrastructure and development is therefore essential as this creates space in the BGI project delivery process to include other values leading to engaging on values instead of value trade-offs.** This applies to both internal and external actors, as the BEGIN cases show.

---

14 *Poole, M. S., & Van de Ven, A. H. (1989). Using paradox to build management and organization theories. Academy of management review, 14(4), 562-578.*
15 *Kuitert, L., Volker, L., & Hermans, M. H. (2019). Taking on a wider view: public value interests of construction clients in a changing construction industry. Construction management and economics, 37(5), 257-277.*

ILLUSTRATIVE EXAMPLES
Strategic visioning for BGI

WORKSHOP FOR THE NATURALIZATION OF THE DENBURN RIVER
**Aberdeen City Council**

At the very early stage of the project, a workshop for the naturalization of Denburn river has involded various stakeholders including social and sustainability actors (ACC, SEPA, Scottish Water, NHS, Archeology, Sustrans, Parks and Country officers, Dee Catchment Partnership, Environmental Planners etc)

EARLY INVOLVEMENT OF URBAN PLANNERS
City of Bergen

Early involvement of urban planners, for overall plan and vision
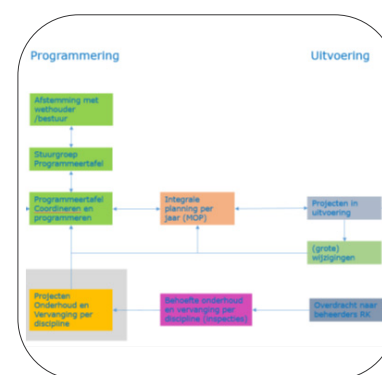
PROGRAM TABLE PUBLIC SPACES
City of Dordrecht

Various city management departments meet to discuss the planning of different projects and align their schedules as far as possible in order to reduce the inconvenience for residents - e.g. not having to open the street several times -, achieve efficiency and, where possible, include extra ambitions - e.g. city-wide tasks such as climate adaptation or social problems at neighbourhood level. For the programming meetings traditional city management departments such as sewage and road construction are represented, but also for example physical and social neighbourhood management departments, that normally get involved later in the delivery process.

RECOMMENDATION TWO
From a product to a process understanding of value integration

THE CHALLENGE:
Static purposeful value management in a project-based industry

Public organisations are used to work with deliberate and purposeful value management approaches, like policies (e.g. land use) and regulations (e.g. CO2 emission standards). These entail static approaches to values management and assume a sufficient knowledge base and measurability of values with works for most technical (e.g. sewage) and spatial (e.g. housing) values[16]. With new types of values that occur in the climate and future proof urban transition this becomes problematic as in this context value dynamics are emphasize[17]. Especially social and sustainability values are difficult to assess exactly and objectively, and also to pinpoint their impact , due to their often indirect (e.g. leads to awareness with behavioural change) and long-term effects (e.g. possible improvement for future residents). Moreover these effects are socially constructed and their meaning and importance are evolving. BEGIN cases show that, **this often leads to misunderstanding between professionals from a more technical or planning background, who work project-based with predefined tangible goals, and people from a social or sustainability background who work process based with intangible ambitions and issues, reacting on opportunities that appear.** This also applies to external partnerships, where the misunderstanding may be exacerbated by perceived limitations of institutional boundaries of different stakeholders. Purposeful management approaches facilitate the technical and spatial professions, and (implicitly) narrow the room for social and sustainability professions. The strong project-oriented mindset of the more technical and spatial professionals makes it difficult to align with the more explorative attitude of for example social workers, youth professionals et cetera.

CONDITION FOR VALUE INTEGRATION:
Commissioning the outcome (goal) instead of the output (solution)

Especially in climate resilient and sustainable urban planning projects, interdependencies are growing and actors need to coordinate their activities when looking for interventions that integrate multiple goals and values[18]. To be able to integrate technical, spatial, social and sustainability values, an organisational structure is needed that allows for working in a collaborative and explorative way from the issues at hand, and not just from the predetermined (sectoral) task with clear defined solutions. Working from the issue (for example the liveability of a certain village) means that opportunities can be acted upon during the process. he way values are managed should be emergent, reacting on opportunities that appear[19].

16 Williams, K., Ford, R., & Rawluk, A. (2020). The role of collaborative research in learning to incorporate values of the public in social–ecological system governance: case study of bushfire risk planning. Ecology and Society, 25(4).
17 Pel, B., Haxeltine, A., Avelino, F., Dumitru, A., Kemp, R., Bauler, T., . . . Jørgensen, M. S. (2020). Towards a theory of transformative social innovation: A relational framework and 12 propositions. Research Policy, 49(8), 104080.
18 van Broekhoven, S., Boons, F., van Buuren, A., & Teisman, G. (2015). Boundaries in action: a framework to analyze boundary actions in multifunctional land-use developments. Environment and Planning C: Government and Policy, 33(5), 1005-1023.
19 Stewart, J. (2009). Value conflict and policy change. In Public Policy Values (pp. 33-46). Palgrave Macmillan, London.

As BEGIN cases show, **this requires a cultural change in technical and spatial professions to increase a sense of interdependence of social and sustainability professions.** The social domain seems to be the most suitable for integrated work. But initiating a BGI project from this perspective is also the most difficult, due to an often lacking budget and/or mandate. To limit the effect of sectoral initiation of projects, **a different way of asking a question in the assignment is useful: from the issue, the broader objective (outcome) and not from the solution (output).** The cultural shift towards a processual perspective can be facilitated by allowing budgets in terms of time and man-hours, issue mandate for social and sustainability actors and increase information sharing.

ILLUSTRATIVE EXAMPLES
Strategic visioning for BGI

A MULTI-DISCIPLINARY WORKING GROUP AS ADVISOR DURING PROJECT DELIVERY
Aberdeen City Council

ACC had set up a working group to guide and advise the project delivery team for the Maidencraig pilot project. The working group had meetings on a monthly basis and was made up of people from across several ACC teams and external organisations, thus bringing a broad range of knowledge and experience to bear and offering an excellent mechanism for up-scaling and disseminating outcomes from BEGIN.

ALLOWING ADJUSTMENTS DURING THE DELIVERY PROCESS
City of Bergen

Adjustmendt during the project to give more room for recreation and social life.

PROCESS RESPONSIBILITY
City of Gothenburg

Various city management departments meet to discuss the planning of different projects and align their schedules as far as possible in order to reduce the inconvenience for residents - e.g. not having to open the street several times -, achieve efficiency and, where possible, include extra ambitions - e.g. city-wide tasks such as climate adaptation or social problems at neighbourhood level. For the programming meetings traditional city management departments such as sewage and road construction are represented, but also for example physical and social neighbourhood management departments, that normally get involved later in the delivery process.

INTEGRATED WORK GROUPS
City of Antwerp

Adjustmendt during the project to give more room for recreation and social life.

RECOMMENDATION THREE
From the project perspective to the district/ neighborhood perspective.

THE CHALLENGE:
A project language that doesn't include broader impact

The industry of infrastructure construction is traditionally highly project-based. Although climate adaptation is seen as a matter for the whole city, or even more so for the whole country, for BGI too, working in clearly delineated (often infrastructure-oriented) projects is predominant. Working with projects however leads to strict (institutional) demarcation; either due to project related rules and regulations (institutional) or because of the spatial demarcations of the project site itself. Institutional delineation is caused by the dominance of project language, structures, and processes. Traditional conditions such as budget, capacity, planning and policies are used because it provides measurable criteria to assess the success of a project. But

at the same time, such strict demarcations of projects easily hamper the impact of social and sustainability objectives, as the potential of social and sustainability values is often wider. **The project language clashes with the process language, it makes customisation that is needed from a social perspective difficult.** To put it differently: the possibilities for connecting values often become richer when the spatial scope of a project is broader, as shown is the BEGIN cases. For example, social cohesion can be a meaningful value that can be served with realizing blue-green infrastructures, but it requires that the strict infrastructural focus is lessened in favour of a focus on the surrounding neighbourhood.

CONDITION FOR VALUE INTEGRATION:
Flexibility in institutional and spatial boundaries

A broader focus on "public issues" instead of "technical issues" (as recommended with the former recommendation), also implies that the geographical context in which such an issue is embedded, is taken into account. **The neighbourhood level should have a prominent place in each of the value-integration pathways.** The neighbourhood level is the level at which the actual value-integration needs to be executed in order to create impact. Local neighbourhood level fits value integration, many

things come together, such as work, recreation, social contacts, security, etc. In order to facilitate the district/neighbourhood perspective the institutional and spatial boundaries need to be more flexible and ask for using a more integrative, neighbourhood perspective that enables to work with city wide transition issues.
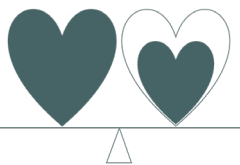

ILLUSTRATIVE EXAMPLES
Strategic visioning for BGI

FRIENDS OF DENBURN
Aberdeen City Council

Engagement with community group 'Friends of Denburn' at the start of Maidencraig pilot project


PLACEBUILDING- QUANTITY OF TIMES METHOD
City of Gothenburg

Up-scaling through quantity of times method of placebuilding being used rather than using the method in bigger projects. Method needs to be applied site-specifically. This leads to integration of values within the pilot area of Frihamnen.

MINDEMYREN DEVELOPMENT AS PART OF OVERALL STRATEGIES FOR THE CITY
City of Bergen
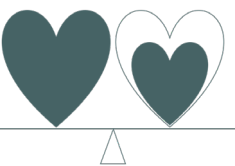
From the beginning, the conditions for the Mindemyren development has been overall strategies for the city (sustainable mobility, blue-green infrastructure for recreation etc). Cooperation between the public sector and private developers has been an important step in seeing the separate development projects in a district/city wide perspective. During the process local neighborhood stakeholders have been involved. Also, city architect, urban planners, property owners, local businesses has been involved. A miniature model of the area was built to further engage with stakeholders.

NEIGHBORHOOD APPROACH
City of Dordrecht

In Dordrecht, the neighbourhood approach is considered one of the ways to deliver a project. When this approach is chosen in the programming meeting (see recommendation 1), within the further process local residents are considered key stakeholders. And the social neighbourhood manager forms a duo with the physical neighbourhood manager. The neighbourhood manager takes care of the social aspects and the project leader takes care of the physical project, but these two actors remain in close contact.

RECOMMENDATION FOUR

From a procedural focus on integration to a professional approach towards integration

THE CHALLENGE:
Narrowly defined value systems for formal responsibility

When public organizations try to deal with complex social issues, approaches to value integration that are more towards the social innovation side of the spectrum, quickly become a challenge when confronted with traditional forms of subsystem policymaking within hierarchical governance systems that have more narrowly defined value systems[20]. BEGIN cases show that integration of values often takes place on a strategic, policy making, level. The strategic level leads to formal integration based on policy. **Because of the often dominant existing hierarchical accountability structures the newer social and sustainability values need to be 'sold' (accounted for) through values that are already strongly embedded in formal structures at high organisational levels, like more procedural values as safety and predictability.** This means that social and sustainability goals have to be adapted to fit within the formal narrowly defined value systems. As a result these new values often lose much of their original purpose and impact.

CONDITION FOR VALUE INTEGRATION:
Facilitating professional considerations by trust

The implementation of new social and sustainability values asks for a high level of expertise. This involves both knowledge of the area (for social values) and broad subject-related knowledge (for sustainability values). The actors who have this type of knowledge are often more involved at an operational level, as the BEGIN cases show. This does not necessarily mean that they don't have high level functions, but just that their 'comfort zone of impact' lies at the operational level. Especially social, but also sustainability actors, are more used to look at issues from multiple perspectives, because social and sustainability issues are never one sided. These professions take responsibility informally to look at issues from multiple perspectives, because it is in their professional nature. It is therefore important to facilitate the involvement of this actors in integrated decision-making and thus use their knowledge to avoid mistranslation of newly added values. This applies to both internal and external actors. **Using their expertise instead of/ in addition to procedural responsibility also means that trust and informal responsibility at tactical and operation level is conditional for value integration.** Facilitating these social and sustainability professions by trust provides a certain 'freedom' that is needed to examine opportunities for value-integration.

20 *Stewart, J. (2009). Value conflict and policy change. In Public Policy Values (pp. 33-46). Palgrave Macmillan, London.*

ILLUSTRATIVE EXAMPLES
Strategic visioning for BGI

EXPERTISE FORM THE COUNTRYSIDE RANGERS
Aberdeen City Council

A great idea of installing plaques in the area of Maidencraig (pilot project) came from the expertise of the Countryside Rangers which where involved in the project from the very beginning. Found on directional finger posts, the plaques encourage visitors/kids to interact with nature.
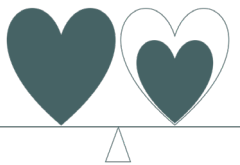
FEEDBACK FROM INTERDISCIPLINARY GROUPS
City of Bergen

Interdisiplinary groups discussing and giving feedback on the different aspects of the infrastructure plan, for example blue-green, mobility and public space.

NEIGHBORHOOD BROKER
City of Dordrecht

An intermediary is used to bridge the logics of the system world and the logics of the life world of residents and small local businesses. In order to participate with residents a neighborhood broker is hired. In the Vogelbuurt this is an official welfare partner of the municipality, named Vogelnest. The Vogelnest have worked e.g. on awareness raising and private action to green gardens.

CITYLAB
City of Antwerp

The EcoHuis advice and demonstration centre has in-house experts who can advise residents of Antwerp on sustainable construction, residence and living. Their campaigns proved to be especially useful in raising awareness for climate change.

RECOMMENDATION FIVE
From 'lead' value to multiple value perspective

THE CHALLENGE:
Sectoral initiation of integral assignments

The relationships between internal stakeholders can influence the dominance in values, and result in a single, 'lead' value. **Often one department or organisational domain is considered the initiator and contractor of the BGI project and this has its effect on the degree of integration.** The BEGIN cases show that when the initiative for BGI traditionally comes from the technical department, acting as the 'owner' or responsible asset manager of the water tasks, the management approach is often more traditional mono-value oriented. This means that one value is put central and gets optimized. The traditional sectoral initiation of initiatives creates demarcations for the process of delivery. This also relates to the (organisational) position of social and sustainability actors and the influence this has on budgeting, mandate, and communication. The urgency of including social elements in the assessment seems to be lacking when residual in budgets is supposed to be used for these goals or subsidies need to be requested during the process of delivery. Next although structures are developed for integrated decision-making, alignment and matching (of projects) still often takes place on a personal basis in formal and informal consultation structures. The development of these structures, formal and informal complicate the desired involvement of social and sustainability actors. Most often one value is leading or dominant in trade-off, which limits opportunities for value integration.

CONDITION FOR VALUE INTEGRATION:
Facilitating integral assignments by joint commissioning

The department who takes the initiative influences the formulation of the contract and the chances of value integration during the process. To increase the urgency for integration of other types of values (social and sustainable) the assignment, especially the one giving the assignment, is key for the value outcome, as the BEGIN cases show. **To integrate values in BGI it is therefore important to jointly commission an assignment.** Multiple actors, from different departments, need to be involved in commissioning. To limit the demarcation as a consequence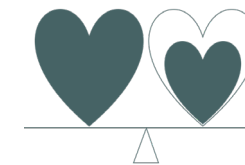 of sectoral initiation of projects different organisational classifications may be used to initiate projects; classifications based on themes which ask for integrated solutions (e.g. sustainability, blue and green infrastructure, social welfare etc) instead of the sectoral or departmental structure. **Commissioning based on themes means that not necessarily one department is in the lead, but that several actors are.** In addition to internal joint commissioning, where multiple city actors jointly commission the BGI project, joint commissioning can also be public-private.

A MULTI-DISCIPLINARY WORKING GROUP AS ADVISOR DURING PROJECT DELIVERY
Aberdeen City Council

ACC had set up a working group to guide and advise the project delivery team for the Maidencraig pilot project. The working group had meetings on a monthly basis and was made up of people from across several ACC teams and external organisations, thus bringing a broad range of knowledge and experience to bear and offering an excellent mechanism for up-scaling and disseminating outcomes from BEGIN.

INTEGRAL INFRASTRUCTURE DEVELOPMENT
City of Bergen

The lightrail development has been the driving force for the development, but there has been excellent coordination with all other infrastructure development (water, waste, transportation) and overall perspective for liveable city. Increased value of the blue-green infrastructure.

BLUE-GREEN VISION AS INITIATOR OF PROJECTS
City of Dordrecht

A blue-green specific vision was created as a translation of a national plan about spatial adaption for climate change, along with ambitions for biodiversity, positive health and cultural heritage. Projects are initiated from this vision within a proposed interdisciplinary program. In this program a translation takes place of larger ambitions in the city-wide task (for a Blue-Green City) to what it means for concrete actions at neighborhood level: e.g. greening measures to reduce heat stress (also contributing to recommendation 3).

BLUE AND GREEN AS A 'MUST HAVE' OF THE SPATIAL STRUCTURE PLAN
City of Antwerp

Antwerp is developing a progressive spatial structure plan with a 'soft spine' in which Blue-Green is one of the 3 topics. The 'Inspiration Note' was already approved. This is the base for the elaboration of the Spatial Structure. The elaboration of a green and water plan provides the base for this topic In the spatial structure plan.

RECOMMENDATION SIX
From integration as non-committal to formal safeguards

THE CHALLENGE:
Non-committal inclusion of social and sustainable objectives

Another concern is the formulation of value-integration goals. Although good intentions, the ways in which the value-integration goal is written down already create demarcations for the process of delivery. **The BEGIN projects show that often social and sustainability values in the formulation of integration objectives and implementation have a noncommittal character.** Most often its it stated that these social and sustainability values have to be 'taken into account' or it is mentioned that social and sustainability actors have to be consulted. This is linked to the characteristics of the perspective: from a social and sustainability perspective values

are translated into intangible ambitions and issues, and from a technical and spatial perspective values are translated into criteria and projects. Instead of being part of the actual integrated BGI objective and the associated assessment criteria, social and sustainability values remain non-committal in setting the project assignment. And therefore, have little to no chance to survive in the project delivery process. In order to be considered in the decision-making for integrated goals the formulation of social and sustainability goals are translated in spatial terms, because budgets can then be linked to these values. However this also means that the initial idea gets lost and undesirable demarcation takes place.

CONDITION FOR VALUE INTEGRATION:
Counterbalancing the sectoral accountability with integral accountability

The urgency to include social elements in the criteria seems to be lacking because there are often no direct budgets for this, and budgets are closely linked to goal setting. Internally, the condition for support for value integration is rather institutional, e.g. if a value objective can be accounted for and/or subsidies become available. **Improving the position of**

social and sustainability professions within the parent organisation means that multiple organisational and disciplinary boundaries have to be crossed in terms of budgeting and mandate. It is important that sectoral accountability is counterbalanced with formal accountability for integral decision making.

ILLUSTRATIVE EXAMPLES
Strategic visioning for BGI

A HOUSING DEVELOPER WITH A SOCIAL HEART
Aberdeen City Council

Through engaging with a housing developer on an adjacent site at an early stage, ACC secured funding for the construction of a "safe route to school" foot- and cycle-path through the site of the Maidencraig Flood Management Wetland Scheme. This route is providing an enhanced route to school for children living in the new housing development and a new and improved link between communities separated by the site. The path was built on top of an earth bank which was installed to hold water during extreme rainfall event and reduce flood risk downstream.

TRANSLATION OF GOALS INTO PHYSICAL ELEMENTS
City of Bergen

Goals for sustainable mobility (lightrail, biking and walkability), biodiversity (fish in canal), open spaces for recreation, sustainable stormwater management.

THE MIP TOOL
City of Dordrecht

The MIP tool is the technical support that provides insight to the program table (see recommendation 1) into measures, projects, policies and wishes. This is done on a map where several years are visible. The input of measures, projects, policies and wishes by means of the maps in the MIP tool is a task of the person who is responsible for the content of the measure, project or wish. Using the MIP-tool, additional initiatives, projects, points of attention or wishes are examined that can be included in a project. These may be matters that do not have priority at first, but do require attention and for which the project location may be suitable.

AUTHORS

Dr Lizet Kuitert
Erasmus University Rotterdam; kuitert@essb.eur.nl
Prof Arwin van Buuren
Erasmus University Rotterdam; vanbuuren@essb.eur,nl

THE BEGIN PARTNERSHIP

Belgium: City of Antwerp; City of Ghent
Germany: Agency for Roads Bridges and Waters, Hamburg; Hamburg University of Technology
The Netherlands: City of Dordrecht; IHE Delft; Erasmus University Rotterdam
Norway: City of Bergen
Sweden: City of Gothenburg
United Kingdom: Construction Industry Research Information Association (CIRIA); City of Bradford Metropolitan District Council; Kent County Council; Aberdeen City Council; Enfield City Council; Royal College of Arts; University of Sheffield