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D1.19 - Co-creation and co-development tools and procedures (Interim)

WP 1 , T 1.9

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1 How to use this document

Involving residents, businesses and other groups in society in the development and implementation of your Renaturing Urban Plan will greatly improve its chances of success. Use this document to plan out how you will do this. This document offers a clear, easy-to-follow approach to preparing a co-creation plan to support your Renaturing Urban Plan (RUP).

To help you prepare your plan, this document offers two main resources:

1. A **Template Co-creation Plan** that you can complete to produce your co-creation plan
2. A **Co-creation Toolkit**, with advice and examples to support your co-creation plan.

To prepare an effective co-creation plan, we suggest you first review the template, then look through the toolkit, then begin filling out the template with your team. Once you've got an early draft, it's a good idea to meet with experienced engagement practitioners or specialist engagement teams in your organisation to discuss this draft and invite their ideas and input.



2 Template co-creation plan

Co-creation is an advanced, modern form of community engagement, but planning it doesn't have to be complicated. This template takes you through a few very simple steps to make sure your engagements are undertaken for the right reasons, with the right people at the right time. The key parts of the template are as follows:

- Purpose – What are you trying to achieve?
- Stakeholder analysis – Who are you going to 'co-create' with?
- Timing – At what stages in the RUP development and implementation will you engage?
- Location – Where will you engage?
- Co-creation approaches – How are you going to engage?
- Evaluation – How will you know it worked?

If you have a clear, well-reasoned answer for each of these steps, which your organisation agrees on, you probably have everything you need for a co-creation plan. The headings below are elements of a co-creation plan – fill these in and you'll have the basics ready!

2.1 Purpose of the plan

Defining goals and objectives and purpose first will help to get the most out of engagement.

Clarity and transparency are key to developing positive relationships, and so it is important to define the goals and objectives of co-creation at the outset. Reflect on the distinct reasons for involving people in urban greening strategies and use these to inform the goals and objectives.

- What are the goals and proposed outcomes of the co-creation strategy?
- What are the project objectives, and the engagement objectives?
- What are your negotiable and non-negotiable elements?
- Define *exactly* what your stakeholders are helping to decide and/or co-create.

It is important to be clear with each stakeholder on what they are helping decide or do, by having well-established negotiable and non-negotiable elements. A positive example of this is found in the co-creation of Urban Forest Precinct Plans in Melbourne, Australia (City of Melbourne, 2019). Instead of being asked what specific species residents wanted (final species is a decision for tree specialists) they were asked: 'What *kind or character* of trees do you like?'. This way, a specialist arborist could select trees that generally fit the shape, colour and size preferences of local communities (these were the negotiables) while reserving the final decision on species (this was not negotiable).

Consider your limitations:

- time
- resources
- flexibility of final decision



2.2 Stakeholders for co-creation

Local people and experts can hold highly relevant knowledge for the management of NBS, ranging from cultural history to geomorphology. Involving a range of stakeholders can offer much needed trans-disciplinary approaches to tackle complex modern problems. Collaboration of diverse stakeholders such as governments, NGOs, scientists, interest-groups, philanthropists and charities are likely to enhance the social and environmental outcomes of NBS.

Our guidelines for successful engagement of a wide range of stakeholders, involve asking the following questions:

- Who are your stakeholders?
- Who might be impacted by, or interested in the project?
- Who are the stakeholders who may have been excluded from decision making in the past?
- Javaid and Habeeb (2018) identify four main categories of tricky participants, the 'Unsocial, Uninformed, Unheard and the Objectors'. Make a list of who these might be for you.
- How can you ensure a diverse group of stakeholders?

We recommend considering what resources you might need to encourage previously uninvolved stakeholders, such as language interpreters. Using different formats of communication will be useful in attracting a broader range of participations. Online platforms such as social media can be useful, as well as physical flyers that can be placed in local community hubs and in existing parks.

The Department of Health and Human Services in Victoria, Australia suggest outlining the following for each stakeholder:

- Interest in the project
- Power to influence decision making
- Stakeholder capacity and limitations
- Appropriate methods of engagement
- Barriers to engagement
- Additional resources /upskilling required

(DHHS, 2018).

If it is relevant to your area: Indigenous communities have unique knowledge of ecological systems and could be extremely valuable to re-naturing strategies (see for example Monash Sustainability Institute & The City of Melbourne (2016) 'Caring for Country: An Urban Application' , *National Environmental Science Program*). Incorporating Indigenous values and place-making processes into greening strategies can help ensure that strategies and outcomes are environmentally sensitive and culturally acceptable to local communities. See below [\(Section 1.5\)](#) for guidelines on the respectful establishment of an *Indigenous advisory committee*.



2.3 Timing of co-creation activity

Meaningful co-creation with stakeholders takes place in the early stages of strategy development when the goals, aims and values of the project can be defined collectively. Early engagement is most likely to succeed if implemented from the outset, ensuring user satisfaction (Herzele et al., 2005; Sipilä, & Tyrväinen, 2005). From this base, you should also think about the various points in your RUP development process where you will rely on your key stakeholder groups to help make decisions, and ultimately play a role in implementing the plan.

Once you have identified and engaged stakeholders, their limitations, capabilities and goals, you have the basis to develop a plan together. A few tips for working with these groups:

- Develop a set of objectives, decision making processes and, if needed, an agreed set of rules for the functioning of the group, to foster social cohesion. These can be revisited in a democratic fashion, and do not always need to be highly formal.
- Develop strategies to meet the objectives by using the different experiences and perspectives that the various stakeholders bring to the table
- Use this technique for implementation as well as RUP development.

Successfully engaging stakeholders is not as simple as inviting everyone who may be interested in a particular issue to a meeting. Instead, approach different stakeholder groups individually, to have focused discussions that speak to the concerns and needs of the different groups (DHHS, 2018).

Studies report that a valuable step is in the engagement of stakeholders and enabling a collaborative group to form and get to know one another (Frantzeskaki, 2019; Van Herzele et al 2005). Hence, sufficient time should be dedicated to supporting group dynamics and positive interactions.



2.4 Locations for co-creation activity

There are many different formats for engagement. Using a mix of different spaces and places will contribute to valuable, innovative and creative outcomes, while also securing the involvement of a wider range of participants.

Formal settings

Citizen juries, council meetings or workshops allow for formal representation of stakeholders and the public to gain understanding of government processes.

Tips for your formal environment:

- Try to keep these **novel!** An over-formalised structure may compromise innovation, but formal can be impactful - see 'mini-publics' below in [Section 1.5](#).
- **Avoid** Public Forums or City Hall meetings, a method described as a *sham* by influential urbanist Jane Jacobs (1992). These settings often allow only for specific groups (such as older, wealthy retirees with a clear schedule) to be heard and be the squeaky wheel who gets the oil (Einstein et al, 2019). See the facts here: [Section 2.8.2, Box 5](#).

Informal settings

- Case study research emphasises the importance of fun activities such as park meet-ups and BBQs to foster creative ideas and teamwork (Frantzeskaki, 2019).
- Community drop-in sessions or info tents at a community fair can be a great way to engage new participants.
- Field trips or site visits can help to foster attachment to place and understanding of natural systems.

Throw a community dinner party! Just like the 'Young people eat together' event in Vejle, Denmark where city officers, deputy mayors and urban planners shared a meal together at the table with over one hundred young attendees to discuss the future of the city with nature-based solutions as a focus (Frantzeskaki, 2019).

Online

Access the hard-to-reach groups through online apps for efficient, cost-effective data collection.

Platforms used frequently in the US, such as *Mindmixer* and *MySidewalk* simplify communication between city leaders and the public, offering a platform where time-poor participants can submit ideas, answers instant polls or surveys, and offer solutions which are voted on by their peers. Find more examples of online examples here: [Section 2.2.3 \(Box 3\)](#).



2.5 Co-creation activities

After identifying stakeholder groups and their aspirations, the different techniques for engaging these groups need to be considered. The choice of each method or technique should come from an examination of approaches that are likely to be beneficial for the stakeholders as well as supporting the desired decision or co-creation outcome.

We suggest that this section of the template should include an activity summary similar to the sample table below (Table 1). Consider the example, then fill your own:

Table 1 - Example of a co-creation activity summary

Project stage	Stakeholder group(s)	Desired outcome	Activity	Dates	Location	How will this be promoted?
RUP Scoping	<ul style="list-style-type: none"> Residents Businesses 	Identify priority issues Identify panel reps	Website where users can put a dot on a map and discuss their issue	xx April-xx July 2019 (inclusive)	Online	<ul style="list-style-type: none"> Rates notices Online ad Media release
	<ul style="list-style-type: none"> Older locals Migrants Children 	Ensure these groups have input Identify panel reps	Offline workshops (x3)	xx April xx May xx June	Local schools Libraries	<ul style="list-style-type: none"> Ads in libraries Outreach to resident groups
RUP site selection	<ul style="list-style-type: none"> Panel reps 	Help choose from shortlisted sites	Workshop with planners	xx September	Town hall	Email via mailing list
	<ul style="list-style-type: none"> Locals to key neighbourhoods 	Notify of plans and process	Info stalls	x August-x Sep (inclusive)	Local markets	Posters onsite Ad in local paper
etc	etc					

With respect to co-creation activities, there are many options to choose from; the key is to choose the right activities for the right times, stakeholder groups and decisions. Different approaches can deliver different outcomes. We include a few options below, but also be sure to refer to the Co-creation Toolkit.



Workshop session styles:*Creative workshops:*

-visual collage or 3D model activities can allow people with different backgrounds and experience to participate (Frantzeskaki, 2019).

*Group**work*

- 'choose your own adventure' - in groups, citizens identify and work on specific actions. In Burgas, Bulgaria, the chosen actions included 'green spots for playing' and elements such as rain gardens or bioswales (Frantzeskaki, 2019).

Formal processes

With a mix of internal and external stakeholders, the development of a '*Practitioners steering committee*' is often helpful. The committee can involve key stakeholders and community leaders and offer advantages such as

- Providing a method of communicating with all parties at the same time and in the same way
- Serving as an effective platform for key stakeholders to share views
- Offering a space to overcome barriers together

Try consulting a 'Mini-public'

Traditional processes such as a citizen jury or panel now fall under the extensive umbrella of 'Mini-publics', a range of tools allowing members of the public to learn about and deliberate on complex modern problems. Decisions made on climate-related crises in Poland by a citizens' assembly, are formally accepted by the local mayor if the consensus of the mini-public is above 80% (Gerwin, 2018). Cities in Poland have implemented both flood resilience and air pollution mitigation strategies through the advice of the mini-publics (Gerwin, 2018). See [Section 2.8.5](#) for the details of this case study.

Consider a citizen science program

Citizen science is a growing practice of public participation and collaboration in scientific research to increase scientific knowledge, where members of the public are engaged to contribute in research of their surroundings (National Geographic Encyclopedia, n.d.). Factors likely to improve success include recruitment of community members to act as program monitors, engaging school groups or existing community interest groups, and having an effective communication strategy to share data, such as an app (iNaturalist, n.d.)

Engagement incentives can take the form of healthy competition: The City Nature Challenge in April 2019 involved a global contest between metro areas on the most observations of nature in their cities and the competition resulted in a total of 920,384 observations of various species worldwide over just three days. The observations were uploaded to iNaturalist, an app which allows users to upload their observations, discuss with other users to confirm identification of the species, before the data is added to scientific data repositories for scientists to use. Online platforms such as iNaturalist can be useful in citizen science 'BioBlitz' style events for effective research and sharing of data collection (iNaturalist, n.d.). Find more examples of citizen science in [Section 2.8.3](#).



Holding a design contest for a nature-based solution can attract interest from all sections of the community. Around the world, such competitions are having great success, for example in Berlin, co-creation involving a design competition was run for a new proposed recreational park (Am Gleisdreieck Park). The competing concepts were exhibited at a ‘planning weekend’ open to the public, after receiving more than 500 park concept proposals from the public (Burgess, 2014). The concepts were grouped into themes and used to create the final design – read more in [Section 2.8.4](#).

Engage in the great outdoors:

A great way to test out a design or site is through a *tactical urbanist pop-up park*. Temporary structures can be used to engage locals in rethinking urban space, involve moveable plants and objectives for a transformative space, or perhaps invite an activity among the natural elements such as a game or a splash in a waterhole.

A walking tour designed by children is an effective way of increasing adult understanding of children’s use and experience of the natural and urban environment. At the ‘Children, Nature and the Urban Environment’ conference in Washington, child-led tours of favourite nature-based playing spots informed community leaders on design aspects that suited the young inhabitants of the city (Hart, 1997).

Meet people where they are, with *outdoor surveys*. This method, the ‘point-of-contact’ interview involves short surveys in the park in the park. These can be quick, easy, enjoyable and are useful for when targeting underrepresented groups, in which case interpreters may be beneficial. This technique has been successful in Oregon, as part of the State Comprehensive Outdoor Recreation Plan (Waller, 2009) find more on this case study in [Section 2.8.2](#).

Conflict resolution

Engaging a diverse group of stakeholders can result in conflict, such as differing perspectives from various experts or interest groups. Participatory theatre, a conflict resolution technique developed in Congo has been adopted around the world as it is a light-hearted, entertaining way of putting oneself in another’s shoes and fostering mutual understanding and compromise (SFCG, n.d.). This process can transform conflict and can reveal a situation in a new and different light, from which new possibilities can emerge (SFCG, n.d.). The extensive training manual developed by the Search for Common Ground (SFCG) in the Democratic Republic of Congo can be found here: <http://www.dmeforpeace.org/sites/default/files/Participatory-Theatre-Manual-EN.pdf>.

Indigenous advisory committee (IAC)

Employing a committee where a majority of members are Indigenous to offer strategic advice and direction on issues relating to Indigenous communities. Meaningful co-creation may involve the offering of relevant resources and empowering Indigenous community members to become leaders. The implementation of an IAC should involve implementation of the principles of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP <https://www.humanrights.gov.au/our-work/un-declaration-rights-indigenous-peoples-1>).



2.6 Evaluation

To increase efficiency and support positive outcomes of co-creative processes and NBS in future endeavours, evaluation is imperative. If well-designed, learnings from early stages of evaluation can be used to adaptively plan future engagement strategies.

Technique 1: Use an evaluation framework

Table 2. presents a framework for evaluating collaborative processes developed to examine the quality of a collaboration process in strategic planning of natural areas in Helsinki.

The framework examines a participatory process in four key areas:
 “(1) improve the knowledge and value base of planning,
 (2) support involvement that is meaningful for residents,
 (3) be operational in the governance system and
 (4) help in guiding the area development in a sustainable direction”

Table 2 - Framework for evaluating collaborative processes in planning for natural areas: perspectives and evaluation criteria and proposed methods & quantitative performance indicators

Evaluation perspectives	Success Criteria	Proposed methods	Quantitative performance indicators
1. Knowledge interaction Joint knowledge base and value of planning is improved through collaboration	<ul style="list-style-type: none"> High quality of information Improvement of the knowledge and value base due to experiential knowledge eg. local, cultural and professional knowledge. 	Analysis of participants and their input to planning, analysis of planning materials, surveys, interviews.	<ul style="list-style-type: none"> Rate of participation Diversity of participants Number of findings that refer to the use of experiential information in planning materials/ solutions in the final plan, Information quality scores /10
2. Meaningful collaboration Involvement is meaningful for every stakeholder	<ul style="list-style-type: none"> Process of participation is worth the effort. Information is accessible Plenty of opportunities for participation, Community learning outcomes. 	Analysis of the participatory process, final plan, and feedback collected from participants, media analysis, interviews, surveys.	<ul style="list-style-type: none"> Extent of information delivered on participation opportunities Number of referring to the use of experiential information Percentage of stakeholders satisfied with the plan and outcome Quantitative summary of participation opportunities as well as actual participation Percentage/proportion of participants who described process as educational
3. Functioning governance	<ul style="list-style-type: none"> Intergovernmental collaboration, 	Analysis of planning documents,	<ul style="list-style-type: none"> Number of productive contacts identified/used



<p>Collaboration is operational in the governance system</p>	<ul style="list-style-type: none"> • Collaboration is cost-effective, • Learning within the organisation. 	<p>interviews, surveys, cost/benefit analysis</p>	<p>during planning</p> <ul style="list-style-type: none"> • Proportion of costs of participation within the overall costs of planning • Number of conflicts in the process, categorised by type • Percentage of stakeholder satisfaction with the process
<p>4. Positive outcomes and the sustainable use of the area Collaboration guides development into a sustainable direction</p>	<ul style="list-style-type: none"> • Improved quality of environment • Enhanced collaboration and decision-making capacity 	<p>Analysis of plans, documents specifying the goals for planning, impact assessments, implementation procedure, interviews, surveys.</p>	<ul style="list-style-type: none"> • Plan quality scores 1-10 • Number of other plans considered in the plan from the perspective of long-term effects on the area • Changes in stakeholders' satisfaction with the area/site • Changes in use/accessibility of vulnerable groups to high-quality areas

(Source: table generated from Faehnle & Tyrväinen, 2013; Faehnle, 2014)

Technique 2: Let community members undertake the evaluation

An example from Bologna, Italy highlights the potential to engage community members in the evaluation of co-creation. In this case, two community groups were appointed to report and examine a co-creation effort, and were invited to develop an evaluation method and appoint members to monitor the participatory process. *Read more on this case study in Section 2.4.2.*



3 Co-creation Toolkit

This is the accompanying document for the Co-creation Template to provide further details and examples of co-creation and rationale for public participation.

3.1 Rationale for public participation in strategy development

Green spaces provide a remarkable array of benefits in cities, including improving mental and physical wellbeing and liveability and numerous other social, environmental and economic benefits (Maller et al, 2006). The global population is increasingly urbanised, with the UN projecting that by 2050, two thirds of the world's population will reside in urban areas (United Nations, 2018). One outcome of this degree of urbanisation is that humans have never had so little contact with nature (Katcher and Beck, 1987).

There has been much recent attention on how green spaces and other nature-based solutions in cities should be designed to reconnect urban residents with nature and maximise the benefits it can deliver (Van Ham & Klimmek, 2017; Frantzeskaki, 2019). Nature-based solutions (NBS) offer ecological solutions to improve the physical and psychological health and wellbeing and quality of life of urban inhabitants (Maller et al, 2006). NBS utilise or are inspired by natural systems, and are supported by nature (Frantzeskaki, 2019). The European Commission defines nature-based solutions (NBS) as living solutions based on natural systems designed to address a range of environmental challenges, "which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience" (2016, para.4)

Engagement with stakeholders and including community members who stand to benefit from greenspaces in the design process has been identified as key to successful delivery of NBS (Ribot, 1996; Van Herzele et al 2005; Van Ham & Klimmek, 2017, Frantzeskaki, 2019). Stakeholder engagement delivers several key benefits including generating social licence to implement NBS (Fisher, 2004); avoiding disservices and unused spaces (Xi-Zhang, 2012); ensuring equitable delivery of benefits (Xi-Zhang, 2012; Haase et al, 2017); fostering stewardship, generating understanding and trust in government (Fisher, 2004); and generating broader environmental advocacy (Van Herzele et al., 2005).

Here we present a rationale for focusing on co-creation as a critical element of the development of NBS for cities. We outline who, how and when to engage, and identify the tools and techniques for engagement to achieve best outcomes as well as evaluation approaches. We present case studies of innovative and effective community engagement practice and draw learnings from examples that have had less success in achieving their stated aims.

3.1.1 Levels of involvement

There are different levels of involvement that the public can have in any decision. The International Association for Public Participation (IAP2) outline five levels of engagement, with each stage increasing the impact the public has on the decision.



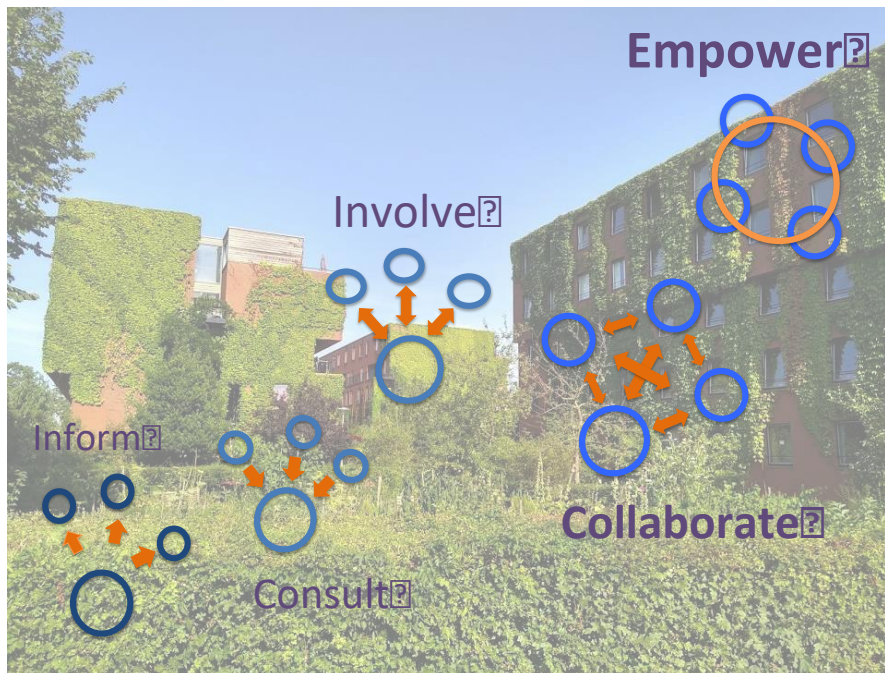


Figure 1. The Spectrum of Public Participation (Image reproduced from Hollyday, 2014 from IAP2 Spectrum)

Following is a summary of the IAP2 Spectrum of Public Participation (IAP2 International Federation, 2014). The links provide detailed examples from different locations around the world that demonstrate each level in action.

1. **Inform:** provides the public with information on the decision ([see Section 3.8.1](#))
2. **Consult:** involves obtaining feedback from the public on decisions and alternative options ([see Section 3.8.2](#)).
3. **Involve:** working with the public throughout the entire process, ensuring the aims and ambitions of the public are considered and understood ([see Section 3.8.3](#))
4. **Collaborate:** a partnership, where the public's advice on preferred solutions is incorporated and alternatives developed together ([see Section 3.8.4](#))
5. **Empower:** Facilitate individuals, communities and organisations gaining power over their environment. The public makes the final decision ([see Section 3.8.5](#))

In this section we make a case for increased use of the more involved stages of the spectrum.

3.1.2 Four key reasons to actively involve stakeholders

1. Foster a sense of ownership

Direct experience of nature is crucial for the development of responsible attitudes and stewardship towards the natural environment (Mabelis & Maksymiuk, 2009). This immediate experience is achieved with optimal benefit when people are involved in the co-creation of urban green spaces. Urban green spaces can enhance social cohesion in their own right (Furlong et al, 2018) among many other ecosystem benefits including positive impacts on physical and mental health (Maller et al, 2006) as well as many economic and environmental



benefits (Kendal et al 2016). Co-creation of these spaces can enhance social cohesion and stewardship, particularly in cases where local residents have been personally involved in NBS initiatives, such as planting and maintaining trees (Sommer et al, 2013). Involvement in co-design can boost social benefits of NBS by creating a sense of belonging and a place to be proud of (Brooks et al, 2016).

Failure to account for the diverse perspectives and values of stakeholders can result in limited use of green space and improper use and damage of facilities and green infrastructure, creating a financial burden for local government (Van Herzele et al 2005; Xi-Zhang, 2012). Public stewardship and support can not only bring down ongoing maintenance costs (Van Herzel et al, 2005), but is imperative to keep urban green spaces in good condition (Mabelis & Maksymiuk, 2009).

2. Everyone's needs can be better met

A traditional top-down or bureaucratic approach to planning urban green space has been increasingly criticized as inappropriate as it is likely to be based on professional assumptions, rather than users' needs (Fisher, 2004; Xi-Zhang, 2012). These assumptions often fail to take into account the diverse needs of different social groups (Xi-Zhang, 2012). Stakeholders can hold a wide range of value positions and responsibilities. When these positions are acknowledged, people feel engaged and valued (Van Herzel et al, 2005). Co-creation involves the inclusion and empowerment of a range of stakeholders (IAP2, 2014). Co-creation is defined as the involvement of, and cooperation between community groups, government and non-government agencies, businesses, and other stakeholders (Furlong et al, 2018).

In the western suburbs of Melbourne, Australia, a collaborative, trans-disciplinary initiative between councils ('Greening the West') is bringing 23 councils, organisations and community groups together. The establishment of this network with a shared vision has generated an environment in which the organisations in the alliance have supported one another to create momentum needed to drive this agenda and make urban greening a priority (Furlong et al, 2018). Co-designing with different players who can complement the others' skills and capacities in activities that lead to the development of a common goal (Frantzeskaki et al, 2014) can help spark community-wide culture change. For example, Greening the West' stakeholders attest that the formation of the group has "successfully increased the profile and priority of urban greening within many different organisations, particularly within local governments" (Furlong et al 2018, p.23).

3. Learn from one another and create a mutual understanding

According to cognitive consistency theory it is difficult to reject a process which one has been actively involved in (Sommer et al, 1994).

Involvement of the public and various stakeholders in greening strategies can provide educational opportunities and lead to greater awareness and understanding (Herzel et al, 2005). Connecting people with local natural areas through NBS can inform citizens of the processes of natural systems and broader environmental issues (Herzel et al, 2005). Co-creation of NBS can also foster greater understanding of bureaucratic processes and help to



build trust. The level of trust established will dictate the quality of the interactions as well as overall satisfaction with the end results (Fisher, 2004).

Active participation of local communities enables local planning authorities to develop policies that reflect the views of local people, and address a wide range of social, economic and environmental problems effectively (United Nations, 1992). A successful green space will promote and reflect the identity and culture of a local community, and the best way to achieve this is by involving the community in the design and development process (Herzel et al, 2005) through co-design and co-implementation.

Evaluation of a participatory process in urban forestry in Finland found that residents' awareness of matters concerning green areas had increased through the process, and planning authorities in turn felt that their awareness of local conditions had improved (Sipilä, & Tyrväinen, 2005).

4. Enhance the quality of decision making using local knowledge

When public policy decisions are made without involving stakeholders, the opportunity to use community knowledge is lost. The huge potential of the urban population is often underutilised, but it can hold the creative ideas, skills and people power needed to take care of green spaces and to maximize their contribution to quality of life (Herzele et al, 2005). Involving users, residents and community groups is fundamental to the long-term success of urban forests, trees and green spaces as it maximises the benefits these spaces provide (Herzele et al., 2005).

For the appropriate ongoing management of green areas, managers need knowledge of indigenous plants and animals, ecology, hydrology, geomorphology and cultural history (Mabelis & Maksymiuk, 2009), all of which may be found among specific knowledge base of local people and experts. Different community groups, such as Indigenous communities can offer ecosystem expertise that is of value to policy makers (Jackson & Altman, 2009) in the development of greening strategies. Traditional ecological knowledge can include understanding of indigenous species, local ecological systems, poisonous plants, and species that can be used for medicinal purposes (Berkes et al, 2000). Understanding of local traditional knowledge and practice can help ensure green spaces and strategies are culturally acceptable to local communities.



Box 2: Traditional cultural practice as nature-based solutions

Around the world, traditional knowledge informs modern greening...

In *Japan*, traditional home gardens reflect a strong connection between biodiversity and local cultural features and make a significant contribution to the conservation of the genetic resources and cultural heritage of the area (Fukamachi et al., 2011).

In *South Africa*, Indigenous knowledge of the Batswana people is reflected in the plant diversity of the Tshimo gardens (Davoren et al., 2016).

In *China*, designs of traditional Chinese Imperial Parks are created from models of beautiful scenic landscapes and have been demonstrated to reduce stress (Yang & Volkman, 2010) while providing a natural oasis among the densely built-up urban environment.

3.2 Best practice for planning co-creation to support a strategy

3.2.1 Some preliminary advice on how to get the most out of engagement

The level of participation should be agreed and defined at the very beginning of the process. When making decisions about participation in co-creation, we recognise that higher levels of participation may require a greater initial investment in terms of cost and time. However, involving the public in the planning stage can limit costs and delays later on, by preventing complaints and objectives at the point of implementation (Sipilä, & Tyrväinen, 2005). It may also save on maintenance costs, for instance in the reduction of vandalism (Van Herzele et al 2005). Involving users, residents and community groups is fundamental to the lasting success of green spaces, and to maximise the benefits these spaces provide, improving the quality of life of users (Herzele et al., 2005).

Given the significant resources required for public participation, it is important to get it right. Devoting a great deal of time, effort and resources into public participation does not necessarily translate into optimal outcomes (EPA, 2018). Here we aim to provide examples of co-creation that have had varying levels of success, to draw learnings for the development of realistic co-creation plans that foster positive outcomes.

3.2.2 What decisions are we making? Defining objectives, negotiables and non-negotiables

Clarity and transparency are key to developing positive relationships with stakeholders, and so it is important to define the goals and objectives of co-creation at the outset (Sipilä & Tyrväinen, 2005). Reflect on the distinct reasons for involving people in urban greening strategies and use these to inform the goals and objectives (Herzele et al., 2005). Transparency in the co-design process is imperative for building trust (Fisher, 2004). Identify decisions that have already been made and those that are up for consultation. Clarifying the rules and scope of participation can prevent misconceptions regarding the degree of influence stakeholders may have on the process (Sipilä & Tyrväinen, 2005). It is important to be upfront if there is only potential influence (EPA, 2018) by explaining that an organisation cannot always guarantee the exact nature of the public's final influence (EPA, 2018).



3.2.3 How many methods?

There is no reason to be limited to a single technique or engagement style. Using several methods at once to complement each other can help to integrate diverse interests (Sipilä, & Tyrväinen, 2005). There may be a crossover of each level of influence, with different methods required to reach and include all relevant stakeholders (EPA, 2018). Stakeholders should be made aware of the different phases of planning and opportunities for influence (Sipilä & Tyrväinen, 2005).

Box 3: Technological tools for online engagement

SURAT, INDIA

Surat, the diamond capital of India has identified encouraging residential participation as a way to improve its tree cover (Saiyed, 2019) Aiming for the World Health Organisation (WHO) guidelines of 15 percent tree cover, The Surat Municipal Corporation has developed a mobile application for residents of Surat who are interested in planting trees to register to be able to receive saplings free of cost for planting (Saiyed, 2019). The success of this initiative has prompted the municipal corporation to work on other incentives, including developing plans to provide a reduction in property tax for those who maintain green spaces (Saiyed, 2019).

HAMBURG, GERMANY

Smarticipate is a mobile application that emphasizes the importance of making planning proposals easier to understand and was trialed in Germany to promote tree planting (Amarticipate, nd.). Residents of the city were able to identify on a map on the app where they would like a tree planted and receive an instant response on the feasibility of their proposal (Amarticipate, nd.) (<https://www.smarticipate.eu/50735-2/>).

MELBOURNE, AUSTRALIA

An unexpected process of community engagement occurred when 70,000 trees in Melbourne's CBD were given email addresses for people to report issues or fallen branches (Burin, 2018). Instead, citizens began emailing love letters to the trees (Burin, 2018). Melbourne City Council has an interactive tree map where citizens can learn the genus and life expectancy of city trees, and become a citizen forester (<http://melbourneurbanforestvisual.com.au/>).

3.3 Who should I engage? Types of stakeholders you can engage

This section relates to [Section 2.2](#) of the Template.

It is important to carefully consider who to involve in the co-creation process, considering not only those who might be interested in influencing the decision being made but also those who are directly and indirectly affected (VAGO, 2015). Engagement with a diversity of stakeholders is imperative for comprehensive and inclusive decision making (Van Ham & Klimmek, 2017). Kabisch et al (2016) identified the necessity of forging new networks to develop trans-disciplinary and inclusive approaches to governance and engagement to enhance the outcomes of NBS. The complexity of modern problems requires the collaboration of diverse stakeholders, including governments, NGOs, scientists, local communities and Indigenous groups (Van Ham & Klimmek, 2017). Groups including big businesses and developers have the potential to negatively impact on open space and biodiversity, but can also offer unique



solutions to contemporary challenges and should be identified in key partnership opportunities (Van Ham & Klimmek, 2017).

Some groups may not seem willing to participate due to possible barriers. A critical step is to consider whether there are barriers to participant involvement, and identify ways that your organisation can empower them. Lower socio-economic communities can face obstacles such as language barriers, limited understanding of processes or where to find information (Okello et al. 2009; Waller, 2009). It is advised to specifically reach out to community groups that have previously not engaged and, in some cases, it may be useful to offer incentives for participation (Freudenberg et al, 2011). Incentives could take the form of tailored support such as technical assistance, provision of information and resources or training that enhances the ability of community participants (Freudenberg et al, 2011). The San Francisco Parks Alliance provides training and resources for community garden management on their website (see [section 3.8.5](#)). In The Hague, a city in the Netherlands, pamphlets in the park provide updates on the management of the park and information regarding how residents can be involved (Mabelis & Maksymiuk, 2009) (Also see [Section 3.8.3](#)).

Tailored support can be provided when the mix of stakeholders is identified, their diversity celebrated, and strategies developed to reach out to include people of diverse cultures, people with disabilities, elderly and youth and those who are time poor (VAGO, 2015). Javaid and Habeeb (2018, p.4) identify four main categories of participants: the 'Unsocial, Uninformed, Objectors and Unheard'. Each group will require a different tactic to ensure meaningful engagement for co-creation of NBS. Different approaches will work for different people, so having a range of approaches will help (EPA, 2018). A mix of participation techniques can be used including online (Saiyed, 2019), community workshops (SF Planning, 2016) or field-based activities (Sipilä, & Tyrväinen (2005) found community walks in green spaces with planners and participants to be a useful approach).

Box 4: All-ages engagement

Listen to the kids!

In the U.K. as part of the European Commission's urban development program, the 'Spacemaker's project empowered troubled youths aged 13-15 by providing the opportunity to design a new local public park (European Commission, 2007). Local governments, education centres, architects and artists came together with young people who were recruited through open evenings for families. Sixteen participants came on board for the project, which began with a three-day, crash course on urban design, ecological landscaping design, negotiation techniques and planning processes (European Commission, 2007). Visits to parks and discussion about desired features informed the selection of landscape architects. The young Spacemakers were in charge of communicating the process and outcomes to the public, creating flyers to promote the park's opening, along with local radio and TV interviews (European Commission, 2007).



3.4 When to engage?

This section provides more detail for [Section 2.3](#) of the Template.

There is strong agreement in the literature that co-design is most effective and efficient in the early stages of the project development (Appelstrand, 2002; Herzele et al., 2005; Sipilä, & Tyrväinen, 2005; Mabelis & Maksymiuk, 2009). The basic premise of public participation and co-creation is the meaningful inclusion of stakeholders in the planning process, which is most likely to succeed if implemented from the beginning, to collectively define the goals, aims and values of the project (Herzele et al., 2005; Mabelis & Maksymiuk, 2009).

3.4.1 Three key reasons for early engagement

1. More options are open for discussion

Early engagement allows more decisions to be up for negotiation. If major decisions have already been made prior to public consultation, stakeholders can feel like they are not able to have meaningful input (Herzele et al, 2005). The earlier the public is involved, the more influence they can have on the decision, achieving a greater level of support for the final decision (Appelstrand, 2002).

2. Conflict resolution

Early engagement will allow different perspectives to be shared early on, assisting with early identification of potential sources of conflict. In this way conflicts can be understood and resolved early to reach consensus and move on (Herzele et al., 2005).

3. Better understanding of the process

Participation from the beginning of the process will help the public understand how much influence they can have and when. Satisfaction in co-creation of NBS can be improved when participants understand their role in the process (Sipilä, & Tyrväinen, 2005).

3.4.2 Continuous engagement

Ideally, public engagement is continued all the way to the end of the development process, including the provision of a plan and its implementation (Mabelis & Maksymiuk, 2009) and project evaluation (Allegrini, 2018).

An example of ongoing co-creation and co-implementation, including the development of community evaluation is found at the 'Salus Space' in Bologna, Italy, a recent urban renewal project that has been undertaken to provide work, upskilling and a welcome space for the many refugees arriving in the city (Allegrini, 2018). The project involved the conversion of an abandoned aged care facility, 'Villa Salus,' into a multi-use space for the inclusion and welcoming of migrants/ refugees and with the provision of affordable housing, and a collaborative community start-up based upon three community gardens (Allegrini, 2018). The gardens are all accessible to people with disabilities, provide food for the neighbourhood as



well as a multicultural restaurant, and is a place for education and training in Urban Horticulture and Agriculture (Allegrini, 2018).

At Salus Space, community outreach was initially used to engage different parts of the community. Informal meetings led to the creation of two citizen groups; one group in charge of communication of the process to the wider public via an online blog, and an evaluation group to monitor the participatory process (Allegrini, 2018). New participants frequently join the space and are briefed by community members (Allegrini, 2018).

3.5 Types of engagement

Table 3 - Co-creation approaches

Type of Engagement	Stakeholders who can benefit from this method
Online: (see Box 4 for Technological Tools in co-creation)	<ul style="list-style-type: none"> • People who are time poor, such as single parents • youth • people with mobility limitations • People who can't come to meetings for whatever other reasons • Interest groups/businesses who want to be involved but can't always offer a representative <p>Online tools for co-creation can be a great way to enhance and supplement other methods, from running a survey on user satisfaction between meetings, to facilitating an entire citizen science program. Online engagement can be a cost-effective tool for data collection.</p>
Formal: Citizen juries, surveys, planning workshops	<p>Structured approaches can work for some people, such as businesses and other groups that are familiar with systematic inclusion. These formal strategies are easy to replicate and record findings and outcomes. Conventional participation methods, such as public meetings and surveys, play an important role and should not be replaced by methods using modern technology, but can be supplemented by new methods (Herzele et al, 2005). Formal environments can be one of the most effective settings for members of the public to influence decisions (Sipilä, & Tyrväinen, 2005).</p>
Informal: Nature walks, bike-rides, site visits, presence at street fairs & festivals	<p>Informal techniques can involve meeting people in the field and offering information in these spaces. Walks in nature and direct experiences of natural areas can help to stimulate interest in NBS, and are often low cost (Frantzeskaki, 2019).</p> <p>Co-design processes could include a walk in the area</p>



	targeted for NBS development with planners and public participants (Sipilä, & Tyrväinen, 2005).
Creative: Solutions that think out of the box, such as child-friendly engagement techniques, working with artists or participatory theatre for conflict resolution	<ul style="list-style-type: none"> • Co-design with different actors and especially designers, artists, architects and theatre actors can be an effective strategy to generate appealing and socially acceptable designs for nature-based solutions. • Creative conflict resolution such as participatory theatre can make difficult processes easier to understand for some, and presenting issues through an alternative medium can be more inclusive for those who might have trouble understanding bureaucratic language. • Consideration should be given to engagement techniques that can support participation of different age groups and cultural groups in the co-design process.
Hands-on: Citizen science, community working bees, tree planting days	Involving stakeholders in co-implementation of NBS initiatives can be effective in encouraging a sense of ownership or ecological responsibility (Mabelis & Maksymiuk, 2009) with potential benefits including improved ongoing satisfaction and maintenance (Sommer et al, 2013).

3.6 Communication for engagement

High quality communications are essential for co-creation of NBS. Relevant information communicated effectively will improve the validity of the project, community capacity and the quality of decisions made (National Research Council, 2008). To ensure the desired audience is reached, information flow throughout the process is likely to be necessary (Sipilä, & Tyrväinen, 2005). Reaching everyone isn't easy, and not everyone will want to participate, but letting stakeholders know that they *can* be involved if they want to can achieve broader user satisfaction (Sipilä, & Tyrväinen, 2005).

There is no 'one size fits all' technique for communicating about NBS. Use different mediums to attract different sectors of the public. Advertise meetings and processes/invitations for involvement in:

- Public community centres, libraries, gyms
- On flyers in local parks
- Online through social media, websites, emails.
- Other media including newspapers, local papers, magazines, newsletters, on community radio.

3.7 Evaluation of engagement

This section provides more detail for [Section 2.6](#) of the Template.



To evaluate and measure the impact of co-creation, key performance indicators can be useful in identify which practices are worth replicating (Patton 2002), finding out what works, and for whom. Evaluation is also beneficial to inform future co-creation processes (Faehnle & Tyrväinen, 2013).

Some examples of effective evaluation approaches include ‘Salus Space’ in Bologna (Section 2.4.2, p.24), where members of the public self-appointed a community evaluation group who, from the beginning of the process, recorded and evaluated the co-creation efforts and reported to stakeholders via an online blog (Allegrini, 2018). Another example is the evaluation of collaborative urban forest planning via surveys of participants in Finland, which revealed participant perspectives that had not been voiced during the process (Sipilä, & Tyrväinen, 2005).

Faehnle & Tyrväinen (2013) used interviews with participants to develop a framework for examining the quality of a collaboration process in strategic planning of natural areas in the Helsinki metropolitan area, Finland. It was designed to evaluate the formal collaborative process with its accompanying exchanges and activities along with the project outcomes (Faehnle & Tyrväinen, 2013). The framework examines a participatory process through four angles

“(1) improve the knowledge and value base of planning, (2) support involvement that is meaningful for residents, (3) be operational in the governance system and (4) help in guiding the area development in a sustainable direction” (Faehnle & Tyrväinen, 2013, p.334).

(See Table 2 for more detail on the framework).

3.8 Overview of engagement approaches

This section provides an overview of engagement approaches, from basic to advanced, including case studies and examples. We draw on the International Association for Public Participation (IAP2) public engagement spectrum (see Figure 1 above) (IAP2 2014).

3.8.1 At the basic level, when choosing only to *inform*

IPA2 advises to provide the public with: “balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions” (IPA2, 2014, para. 8).

It is important that information about NBS is accessible and understandable for the general public, produced with transparency and clarity (Buchy & Hovermann, 2000). However, the existence of information, services or other forms of community engagement does not guarantee that the public will be aware of it (Schellong, 2007), nor that it can be easily accessed or understood. A study of public participation in a policy review of the national Environmental Impact Assessment (EIA) regime in Kenya found that, despite the public showing a strong interest in EIA activities, information was poorly accessed, with the majority of the public unaware of how to find it (Okello et al 2009).

Without access to information, the implementation of decisions can be impacted by public objections and community resistance to contentious issues, slowing the process and



undermining public confidence in governance and democratic principles (Okello et al 2009). An example of this is a participatory urban forest strategy in Finland in which some aspects of the decision-making were not properly understood by residents, creating confusion and disillusionment with the program (Sipilä & Tyrväinen, 2005).

3.8.2 Consult

There are a variety of techniques that can be used to obtain feedback from the public at this level. Kamenova and Goodman (2015) offer examples of tools for this level of engagement from IAP2's spectrum, including focus groups, surveys and public meetings.

As part of the State Comprehensive Outdoor Recreation Plan (SCORP) in Oregon, the Oregon Parks and Recreation Department specifically recognised the need for engagement with minority groups. A variety of techniques were used for this purpose, including a mail survey of selected Hispanic and Asian households in Oregon, a series of focus groups with Asian and Hispanic community representatives (Oregon Parks and Recreation Department, 2017) and 'point-of-contact' surveys involving park users from underrepresented groups, where users are asked to conduct short surveys in the park with bilingual interviewers (Waller, 2009). The key findings, including trends and ideas from users were published in the SCORP (Oregon Parks and Recreation Department, 2017, p.81). The plan guides the development of recreational programs and new facilities (Waller, 2009), however it is difficult to measure the actual level of impact from this particular series of engagement strategies.

Box 5: Why to avoid Town Hall meetings

Jane Jacobs says so!

Jane Jacobs, an influential urbanist, described city hall forums as a *sham* to use community feedback in ways that pursued powerful government and development interests (Jacobs, 1992).

Participatory inequalities lead to biased discussions

Research from Boston University's Initiative on Cities reveals those who attend and speak up in City Hall forums are generally white and wealthy homeowners. A compilation of data from 97 areas within the Boston metro demonstrated that participation was skewed toward older, more affluent groups (Einstein et al, 2019).

3.8.3 Involve

This level of engagement involves working with the public throughout the entire process, ensuring the aims and ambitions of the public are considered and understood (IAP2, 2014).

An example of this level of involvement is co-implementation, an example of which took place in Beijing in the Miyun Watershed, which is a river catchment which 17 million people rely on for their drinking water (Li and Emerton, 2012). To compensate for loss of forest through logging activities, various attempts at reforestation have been attempted, but success rates were low (Li & Emerton, 2012) and lack of active management was identified as the key issue (Van Ham & Klimmek, 2017). A sustainable use and active management plan where the local community demonstrated their ability to manage the forests was recognised in a formal



agreement that brought together the knowledge and interests of local communities with technical information held by government foresters (Li & Emerton, 2012). This integrated approach brought about successful regeneration of natural forest where the forest structure, quality and overall function improved over time (Li & Emerton 2012).

Citizen science is a method that can be used to engage citizens of all ages in collecting and analysing scientific data. In the Hague, in the Netherlands, citizen science is informal and ongoing. The phone number for maintenance officers and park rangers along with information about vulnerable species and what to report are offered up on flyers in parks to encourage people to inform officials about their observations. This data allows the local government body to have an ongoing understanding of the local biodiversity in the area, informed by obligation-free citizen science.

Citizen science is a key tool highlighted in the engagement template, find it in [Section 2.5](#).

3.8.4 Collaborate

This level of engagement involves a process of participatory decision-making, where the public's advice on preferred solutions is incorporated and alternatives developed together (IAP2, 2014).

An example of collaboration and co-creation is found in the 'Park of Two Speeds' project in Berlin. Am Gleisdreieck Park was proposed by the City of Berlin for recreational use in 2006, and it was at this point the public engagement process began (Burgess, 2014). The city ran a design competition and exhibited the competing concepts at a 'planning weekend' open to the public, after receiving over 500 park concept proposals from the public (Burgess, 2014). Thirty-two working groups were created to develop the project, and it was identified that there were two major requirements for the site. The first, a quiet park with natural areas, a place to relax and enjoy the open space, and the second, a highly active recreational space with lots of opportunity for sports and activities (Burgess, 2014). Thus, came the 'Park of Two Speeds', fulfilling both visions of the diverse community groups.

3.8.5 Empower

IAP2 (2014) describes the empowerment approach as the facilitation of individuals, communities and organisations gaining power over their environment and making the final decision.

Empowerment is the fundamental and most equitable platform for citizen involvement in co-creation, where participants are upskilled to increase community capacity, and gain the power to implement outcomes (IAP2, 2014). Decision-making with integrity will encompass equity, democracy and inclusion (Fainstein, 2010). This can be achieved in workshops on skills and technical assistance, or the creation of opportunities for skill exchange among participants and organisations (Freudenberg et al, 2011). Genuine empowerment will involve reaching out to uninvolved community groups and providing a space for their input in key decisions (Freudenberg et al, 2011).



The Public Works Department of San Francisco City have a partnership with San Francisco Parks Alliance and are together renewing unused lots owned by the Department for community-managed open spaces (SF Parks Alliance, 2019). The Alliance and Public Works joined together to gain approval of the site for community activation, provided there is demonstrated community interest (SF Planning, 2016). The Alliance supports the community to develop an action plan including proposals, budget and planting lists, and runs seminars to support ongoing stewardship (SF Planning, 2016). As well as providing funding to bring the parks to life, project leaders have worked with neighbourhood stakeholders on volunteer work days to implement their action plan to transform unused Public Works property into over 120 community parks in San Francisco (SF Parks Alliance, 2019).

Another form of empowerment that is receiving global attention is the citizens' jury, or citizens' assembly. Each are defined as 'mini-publics' where a diverse body of citizens deliberate on a particular issue and provide a set of recommendations or come to a collective decision (Smith & Setälä, 2018). This kind of deliberative democracy technique is an ideal form of community engagement as it "yields input from a group that is both informed and representative of the public" (McBride & Korczak, 2007, para.13).

Citizen juries demonstrate that if members of the public are informed and provided with time to deliberate and a space to be heard, they can generate decisions on issues that they may have been previously unaware of (Coote, 1992). In the U.K., this technique has been successfully used by the Institute for Public Policy Research (IPPR) to help with decision-making on policy around various health issues (Ireland et al, 2006). A successful example was a youth jury deliberating on embryo selection, where each juror found the process so rewarding that every single juror stated they would have participated regardless of financial compensation (Ireland et al, 2006). In other cases, however, this compensation is important to incentivise those who have not yet shown interest in city matters (Gerwin, 2018).

The assurance of impact is an important element of the 'mini-publics' technique. Often the decision or recommendations by a citizens' assembly or jury is taken into account (Ireland et al, 2006) but not enacted (Kamenova & Goodman, 2015). For the process to be taken seriously, and to increase the interest and involvement of participants, these 'mini-public' must be afforded a more decisive role (Smith & Setälä, 2018). Decisions made on climate-related crises in Gdańsk, Poland by a citizens' assembly, were determined at the beginning of the process to result in mandatory ratification (Gerwin, 2018). The mayor of Gdańsk agreed the assembly's decision would be binding upon him if the consensus of the members of the citizens' assembly was at least eighty percent (Gerwin, 2018). As a result, the city is now more resilient to heavy rainfall after the first assembly made recommendations on flood management (Rushton, 2018). The citizens' assembly model has been used again in Gdańsk, and now Lublin, on other environmental issues. The World Health Organisation estimated that annually, 50,000 people die in Poland from air pollution related illnesses (WHO, 2014). Assemblies in Gdańsk and Lublin were coordinated to decide on actions around air quality, and both made specific recommendations that all coal burning home furnaces be phased out in five years, which is now underway (Rushton, 2018).



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