Greenvolve
GREEN CITIES WITH SMART CITIZENS

Guidance for Citizen Empowerment

PR2-A2

Greenvolve - Green Cities with Smart Citizens

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Statement of originality

This output contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Disclaimer

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Introduction

⬜ This Citizens' Engagement Toolkit aims to provide the reader with an understanding of citizen engagement and green urban city projects while providing practical tips for older citizen (18 to 65+) stakeholders to be able to engage successfully with green city project consultations. We focus particularly on engaging and upskilling older communities, but also NGOs and wider civil society. However, these citizen engagement strategies could also be useful for architects and public planners who seek more in-depth knowledge on innovative methods of involving citizens in urban planning.

Source: Images from unsplash

The Citizens' Engagement Toolkit is an output (PR2) of the Greenvolve project, co-funded by the ERASMUS+ programme. The intention of this toolkit is to provide guidelines designed to raise awareness amongst the general public on the main principles of citizen involvement, specifically in the context of green city projects.

The intention is to strengthen adult citizens' skill sets to be able to participate confidently and effectively in public consultations related to green city projects and policy.

It is recommended that readers also refer to the "Handbook on Green City Elements", a first output (PR1) of the Greenvolve project. Green city elements are processes, issues, and solutions that are significant for a pleasant, green and sustainable urban environment,

ultimately, for the better well-being and health of the citizens (e.g., green roofs and walls, plastic waste, recycling of clothes, bee-friendly gardens, etc.). Each element is covered based on the following structure: basic introduction, description of operation, main features, the most common challenges (related to its operation and/or for which it gives a solution), and best practices. Visualisation and illustration support the materials. The Table overleaf provides a better understanding of the project outcomes.

A third main output (PR3) titled "Collection of civic engagement and public consultation related to green city elements" is in preparation. A 4th and final output will provide access to the Greenvolve online platform (PR4). The above outputs on green city elements and active citizenship will be integrated online in order to provide users with an opportunity to learn interactively on public consultations and green city efforts.

Table 1-Greenvolve's expected Outputs

Project activity	ID	Responsible partner	QA partner
Handbook on Green City Elements	PR1	CAM	Kuldiga
Adult Education Toolkit for Citizen Engagement	PR2	PiM	Mantova
Database on green city solutions and public consultation best practices related to green city elements	PR3	Kuldiga	DIPGRA
Greenvolve platform	PR4	Readlab	PiM
Project management and coordination	PR5	CAM	Mantova
Communication and Dissemination	PR6	Readlab	Kuldiga

1. About the Greenvolve Project

The "Green Cities with Smart Citizens (Greenvolve)" project is a two-year project co-funded by the European Union under the ERASMUS+ KA220-ADU – Cooperation partnerships in adult education programme (Agreement Number: 2021-1-HU01-KA220-ADU-000033719).

Sustainability involves ensuring that allocation and use of land and other resources is based on balanced social, economic and environmental priorities, with the aim of balancing the needs of present and future generations.

Figure 1 – The pillars of sustainability
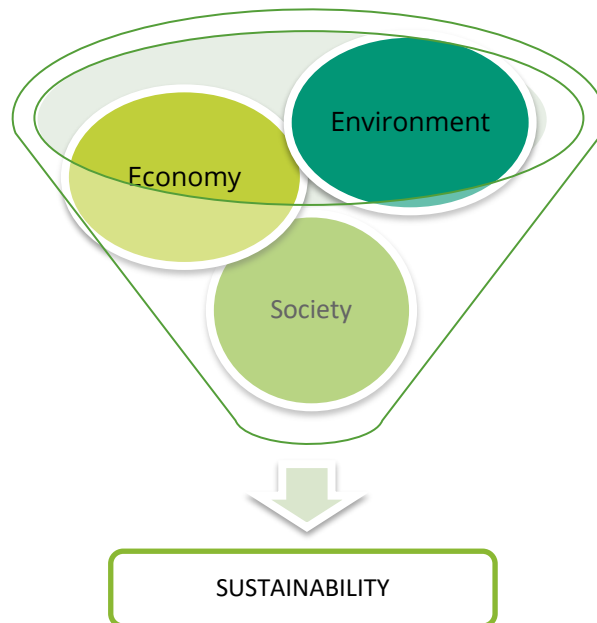
Public consultations for green city projects can provide space for a broad discussion on the future of the city, including the potential impact of development strategies on the community's life, social and economic conditions, and the natural and built environment. Consultation can also provide leaders and stakeholders with a space to work together for a long-term strategic vision and help reconcile divergent interests towards the common good. Thus, urban sustainability can be ensured through informed, collective decision-making and broad-based ownership of final solutions[1].

Figure 2 – The benefits of collective decision-making regarding sustainability and other common-good-goals

Collective decision-making → **can lead to final solutions** → **to ensure long-term strategic vision**

Greenvolve aims to fill this gap in teaching materials and is perfectly in line with many other related EU policies like the European Green Deal[2] and the EU Biodiversity Strategy for 2030[3]; which highlight the key role of schools, higher education and other training institutions to engage with learners, parents, educators and the wider community on the changes needed for a successful green transition. Aware and open-minded citizens can be involved successfully in urban decision-making and, thus, contribute to their own greener, cleaner and healthier environment, neighbourhood and city. Figure 3 below shows the expected results of the project.

Greenvolve will empower 18- to 65-year-old citizens interested in green cities in order to be able to shape urban design efficiently and improve their awareness on how to act responsibly in participatory decision-making which can affect them directly.

Figure 3 – The expected results of the Greenvolve project

The improved knowledge of the citizens about the main concepts, solutions and ideas connected to a green, climate-neutral and sustainable city.

Improved awareness and preparedness of the citizens for participating in urban participatory decision-making.

Improved awareness of citizens on climate change and how cities can adapt to it.

Better opportunities for municipalities to involve citizens in green urban development.

Furthermore, Greenvolve aims to support the implementation of the Sustainable Development Goals (UN) of ensuring sustainable development of human settlements in an increasingly urbanising world.

Figure 4 - The challenge of urbanization

While cities are perceived as engines of enormous potential for economic and social development, creating jobs and offering new opportunities, they can also generate and intensify social exclusion and poverty amongst the vulnerable, marginalised groups, elders, women, children, youth, and religious and ethnic minorities.

What's innovative about the Greenvolve project is that it valorises knowledge on two specific topics, namely knowledge related to green cities overall (PR1), and to how citizens can actually benefit from participatory consultations on green cities (PR2). Active Citizenship is among the eight key competences for lifelong learning in the European Council's recommendation (2018)[4]. Citizenship competence includes the ability to participate in civic and social life by understanding the basic concepts, global developments and sustainability. There are several E+ projects that support active citizenships, e.g., Leadership for Transition 3.0 – Politics and Community Engagement for Social Inclusion[5]. However, our desk research did not come across any projects that developed outputs on building the proposed competencies and toolkit for public attendance at Green City discussions.

What are the underlying concerns behind Greenvolve

Cities and urban living present a number of inalienable challenges and, according to the WHO[6], around 40% of urban growth worldwide lack safe water and sanitation, while 91% of people in urban areas suffer from air pollution. Similarly, urban dwellers health is also considered to be at increased risk and the top ten causes of death amongst urban dwellers are closely related to rapid and unplanned urbanization, and poor urban design and planning. Other vulnerabilities of cities include (WHO,2023)[7]:

Table 2 - Vulnerabilities of cities

	A huge dependence on fossil fuels for transport, cooking and heating/cooling, which leads to increased and localised greenhouse gas emissions.
	Increased urbanisation, 'concrete-isation', and sealing of surfaces, man-made and gentrified environments, leading to degraded quality in the environment.
	Increased waste, traffic, noise, light pollution.
	Unsustainable patterns of production and consumption across most resource needs.
	Increased demand for unhealthy diets and processed foods while further increasing the detachment from farm to fork principles.
	Increased ecosystem and biodiversity loss.
	Decreased quality of life, increased social inequalities, further disconnectedness from nature, less place attachment, increase mental health issues like depression, dissatisfaction, grief, and increased social issues like ghettoising, gentrification, displacement, growing vulnerability.
	More susceptible to climate change due to extreme events, increased heat or cold, dependence on imports, high population densities, heat bubbles, etc.

🫀	More susceptible to health burdens of infectious diseases both in terms of infectious diseases like pneumonia or COVID19 and, non-communicable diseases like heart disease, stroke, asthma, cancer, and diabetes.
☣	Increased vulnerability to natural and technological hazards.

Despite all these complex challenges, Green City projects can create the needed impetus for cleaner environments, increased climate action and better health. However, this is only possible if citizens and their health are prioritised by ensuring better urban quality, creating resilient and vibrant communities, enabling mobility, promoting social interaction and protecting vulnerable populations, and building a greener economy. See Figure 5 below.

Figure 5 – Typical Green City priorities to create meaningful change

Figure 6 indicates the determinants of people's health and well-being, and how they are linked to our impacts on our climate, biodiversity and global ecosystem.

Figure 6 – The wider determinants of health and well-being relevant to urban and territorial planning in human habitation (WHO, 2023).[8]

The health map: Barton and Grant 2006 developed from a concept by Dahlgren and Whitehead 1991
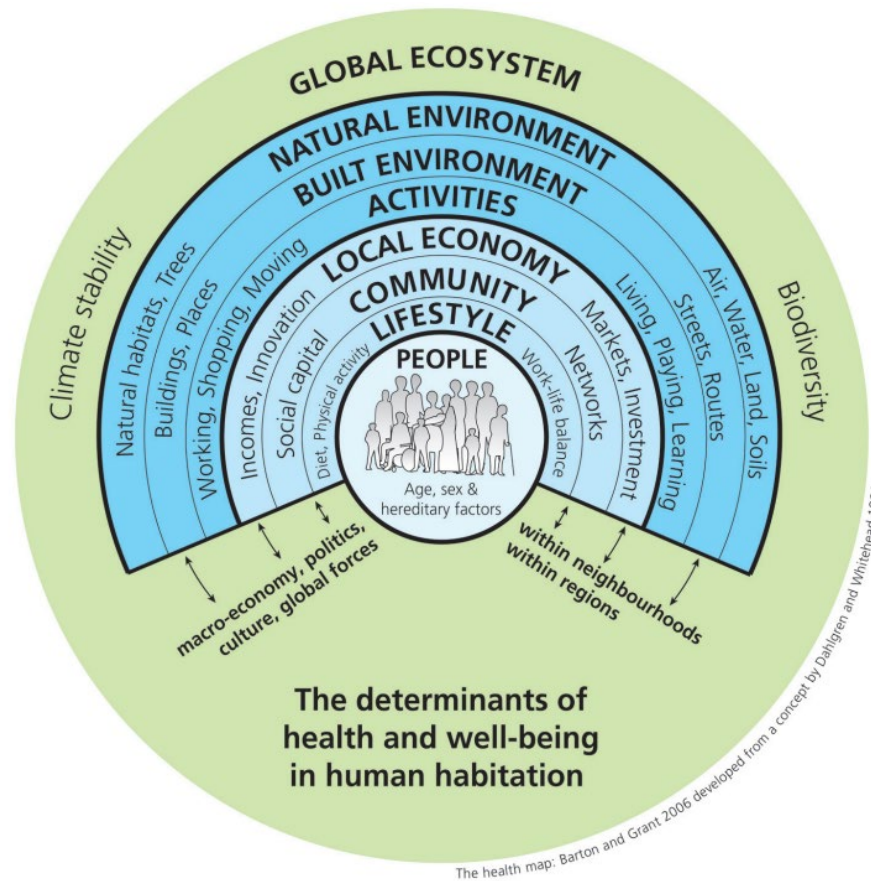
In order to achieve healthy Green City projects, a new approach to current urban and territorial planning is required - a thought-process that is espoused from the here and now, focused on the tomorrow and our children – a process that assesses urban projects in the grander scheme of the human/urban form, rather than in isolation. What is needed is a more wholesome approach to urban planning and development control that considers and influences not only land-use patterns and urban spatial design, but also improved health outcomes and equity for its citizens by improving resource use and access, embracing de-growth principles, ensuring cleaner future transport and energy investments, while increasing biodiversity and nature.

Figure 7 – The advantages of a 'wholesome' approach to Green City projects

How does the wholesome approach improve health outcomes and equity for the citizens?

Improves resource use and access	Embraces de-growth principles	Ensures cleaner future transport and energy investments	Increases biodiversity and nature
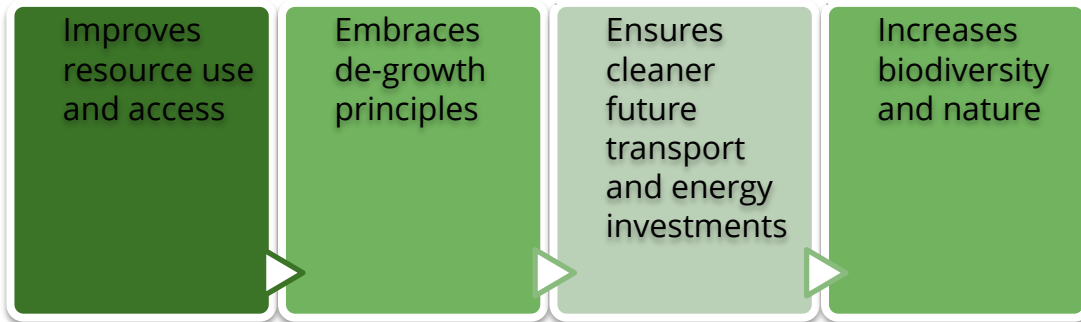
2. The 'Adult Education Toolkit for Citizen Engagement' project result

The focus of this output and toolkit is to disseminate transferable skills which are intended to allow stakeholders to become adaptive learners and citizens equipped to participate in the shaping of green city projects and build resilience in the face of climate change.

Figure 8 – The focus of the output of 'Adult Education Toolkit for Citizen Engagement'
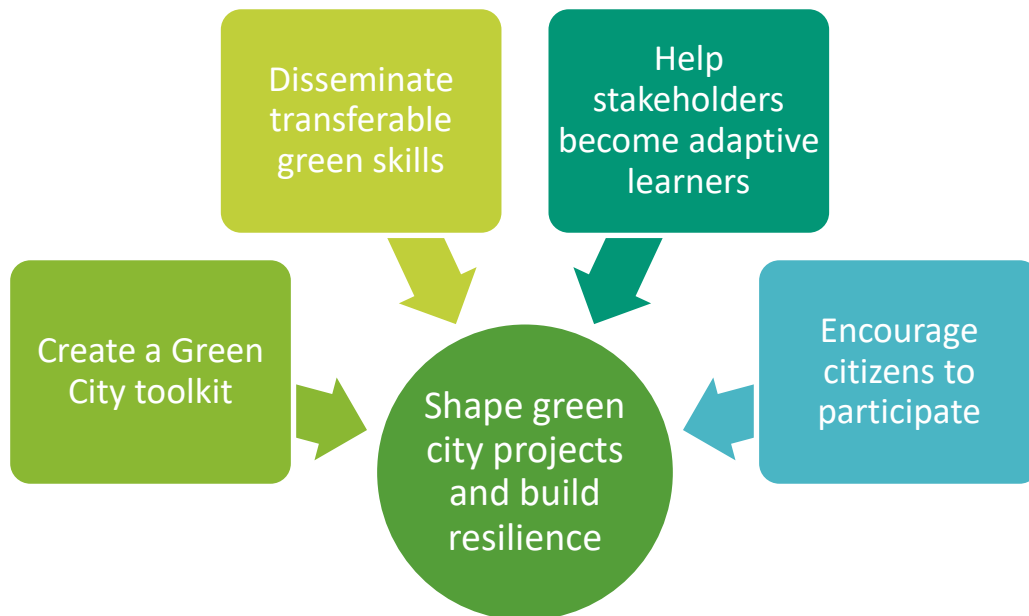
The 'Adult Education Toolkit for Citizen Engagement' (PR2) offers adult learning materials about the main principles of citizen involvement and strengthens their personal skills to be able to participate in different types of public consultations. The intention behind the toolkit is to improve the skill base of the target groups in order to take part in public consultations confidently and efficiently. This toolkit also takes into account non-discriminatory and ethical principles involved in public consultation and greening projects.

Who is this toolkit for?

The 'Adult Education Toolkit for Citizen Engagement' prepares you to effectively consider how you can impact decisions on the function, outcomes, or benefits associated with green infrastructure. This output is intended to help citizens, between the ages of 18 and 65+, enhance their knowledge of the planning constraints, policies, and procedures which typically shape green city projects by providing resources, definitions, and links to background information on citizen engagement for green infrastructure. This output fills in this knowledge gap and draws attention to the challenges stakeholders face when implementing green infrastructure. This toolkit is suitable for a number of audiences, namely community or neighbourhood associations, city officials, agencies, or representatives, and non-profit organisations.

Table 3 - The target group of the toolkit

This toolkit is suitable for:				
Community or neighbourhood associations	City officials	Agencies	Representatives	Non-profit organisations

Ensuring senior participation in Green City projects remains of essence, and Greenvolve is determined to empower individual initiative to participate in green planning by making sure citizens know what types of action are possible, having confidence in their own potential to influence change and being willing to act in their personal sphere, act as agents of change and role models, while inspiring their peers to try to achieve sustainability. See

Figure 9 - Senior empowerment opportunities to support individual initiative to participate in green planning participation in the frame of the Green City project
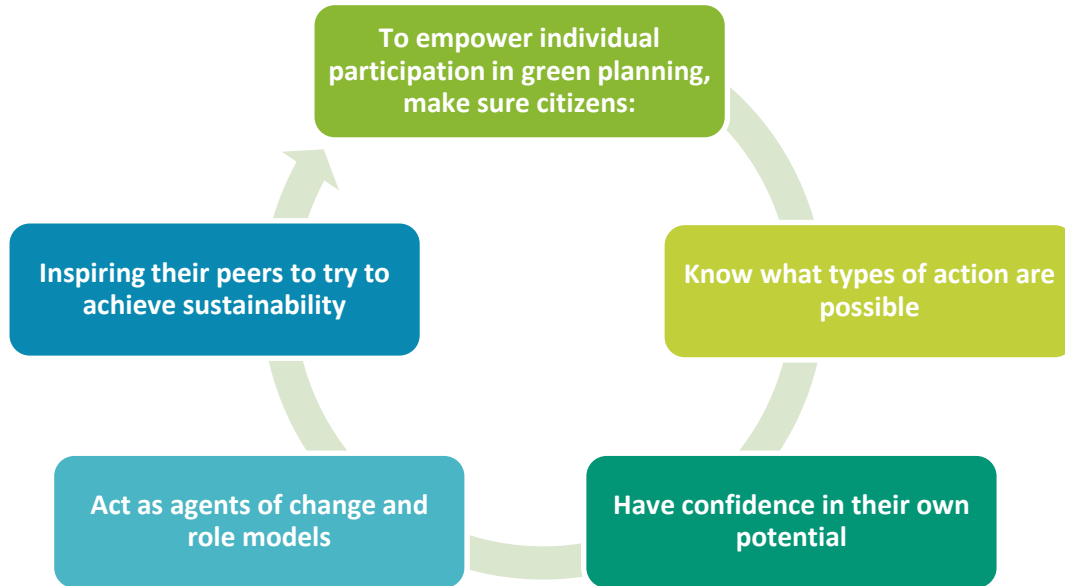
What are 'Green Infrastructures' and 'Green Cities'?

According to the European Commission, Green Infrastructure (GI) is based on the principle that '*protecting and enhancing nature and natural processes [...] are consciously integrated into spatial planning and territorial development'*.[9] Accordingly, the Green Infrastructure Strategy[10] defines GI as "*a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services' in both rural and urban settings* (EC, 2013a)". There is no doubt that green infrastructure which is coherent and connected can offer great benefits for cities. Figure 10 below incapsulates the numerous benefits of green infrastructure for cities.

Figure 10 - The great benefits for cities green infrastructure offers

Enhanced quality of living

Enriched physical and mental health

Improved resilience and equality, as part of an adaptation strategy

Reduced emissions to get closer to the sustainability and climate goals of the Paris agreement. [11]
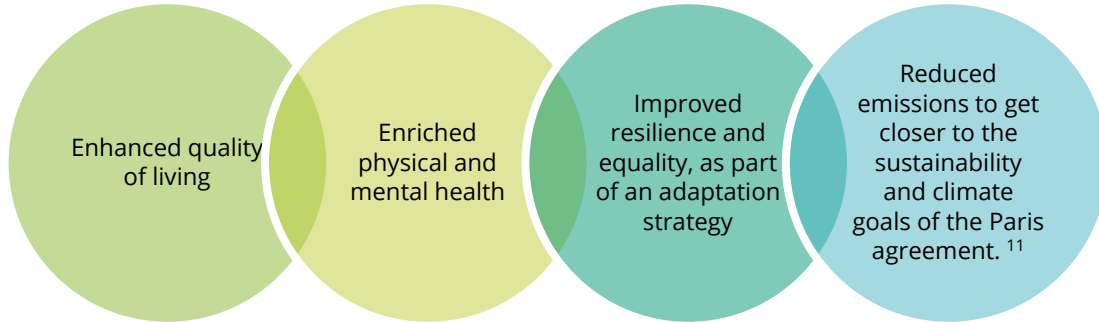
On the other hand, a green city is "*a city that promotes energy efficiency and renewable energy in all its activities, extensively promotes green solutions, applies land compactness with mixed land use and social mix practices in its planning systems, and anchors its local development in the principles of green growth and equity*".[12] Unlike other definitions for green cities, the above definition distinctively includes energy efficiency as a key feature.

Table 4 includes practical examples of efforts undertaken by green cities striving to lessen their environmental impacts.

Table 4 - Practical examples of green cities

| Reducing waste | Expanding recycling | Lowering emissions |
| Increasing housing density | Expanding open space | Encouraging the development of sustainable local businesses |
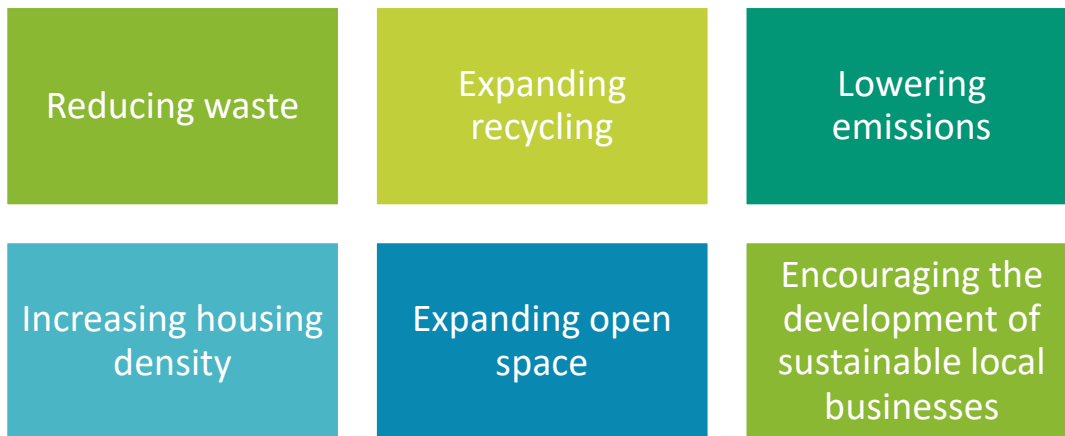
The green city conceptual framework presented in Figure 11 below provides a top-level understanding of what a green city is; composed of four entry points, seven thematic areas and several promoters.

Figure 11 – Green City Conceptual Framework (2018; Adapted from the IHS-GCCF[13i]
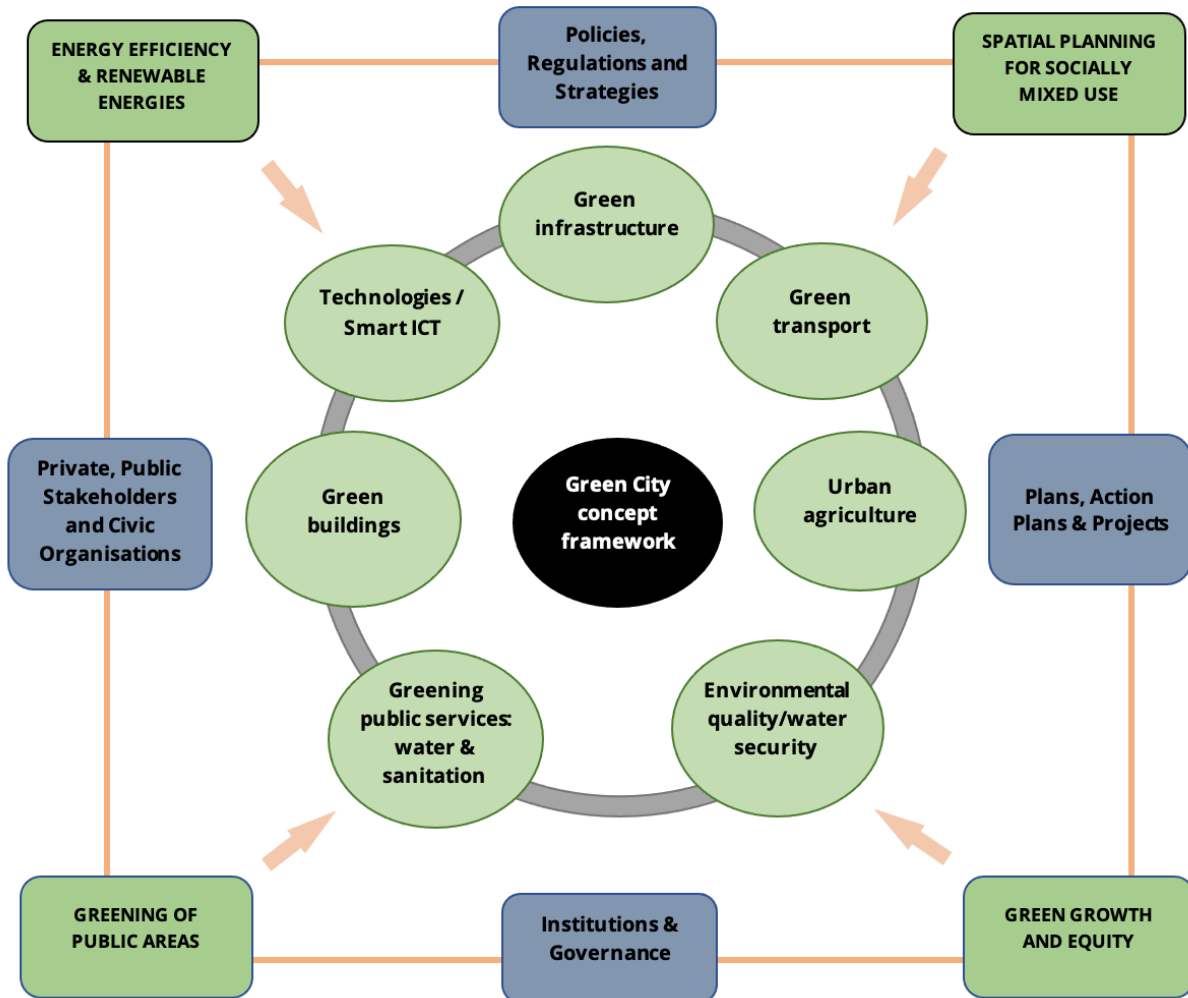
Key challenges in establishing Green Cities

In contrast to conventional city projects and solutions, green infrastructure interventions are still faced with a number of major challenges. A literature review by the B. Green Project (https://bgreen-project.eu/) identifies and groups the challenges facing green infrastructure solutions in cities into four main themes, as illustrated in Figure 12 below.[14]

Figure 12 - The four themes of the challenges facing green infrastructure solutions in cities

Four main challenges facing green infrastructure solutions in cities			
Governance and institutional factors like alignment of governance and work practices towards a more shared understanding of citizen requirements, lack of finance, lack of a regulatory framework and, scepticism amongst public officials of the value of co-creation.	Stakeholder engagement and public/social acceptance challenges like conflicting visions or use of public spaces, political trust and legitimacy, fear of gentrification or public private partnerships, overwhelming interest groups, etc.	Knowledge and skills like lack of awareness of green city opportunities or challenges, inadequate information, digital divide issues, lack of specific expertise, lack of stakeholder engagement tools.	Technical integration issues like conflict with existing critical services already in place, restrictions on what can be done, or lack of cross-departmental collaboration and impact assessments.

On a more practical level, *Table 5* below provides a snapshot of other typical planning and governance challenges afflicting green infrastructure projects in a small island state like Malta (Scheiber, 2018),[15] since these challenges are similar to other EU and the Partner countries. This is intended to illustrate the importance of identifying the overall challenges or barriers during the scoping phase, in order to identify the various approaches needed to address these issues.

Table 5 - Some of the key planning and governance challenges in establishing urban spaces in Malta (reproduced from Scheiber, 2018)[16]

Lack of Stakeholder Participation in Design Process	• Extent of participation depends on architect & client. • Hesitation to involve local councils (due to objection). • local councils make genuine effort to involve the community. • Limited resources hinder such efforts. • Transport authority prioritises vehicles despite existing objectives & policies stating otherwise
Maintenance Issues	• Contractors lack expertise. • Repairs beyond general maintenance are problematic • Engagement process is lengthy. • Funds for maintenance are not sourced upfront.
Lack of Consistency	• Projects reviewed by different teams (major projects, • Urban conservation areas (within development scheme) - review focus varies accordingly.
Lack of Proactive and Creative Planning	• No specific strategy or action plan. • No framework to create opportunities for new open spaces or increase the use value and potential benefits. • Permitting process focuses on responding to technicalities. • Clarifying submission documents vs. design ideas. • Limited discussions on aesthetics & context considerations.
Lack of Urban Open Space Policies & Guidelines	• Functionality, use of vegetation, water management. • Climatic response. • Strategic and generic with no complementary guidelines leading to frustrating processes and waste of resources by applicants. • Implementation of policies by local councils is limited.
Lack of Community Involvement	• Such schemes were not common. • Some councils had positive experience. • Scope to share experiences/ facilitate such schemes.

Another important issue faced by greening projects is that of **social acceptance,** in order to avoid negative attitudes from the general public, public officials involved and business

operators in the area. Table 6 includes the factors that are typically associated with the degree of social acceptance.

Table 6 - Factors that influence social acceptance

Trust in government and business operators

The perceived risk

The perceived benefit

Necessity

Fairness[17]
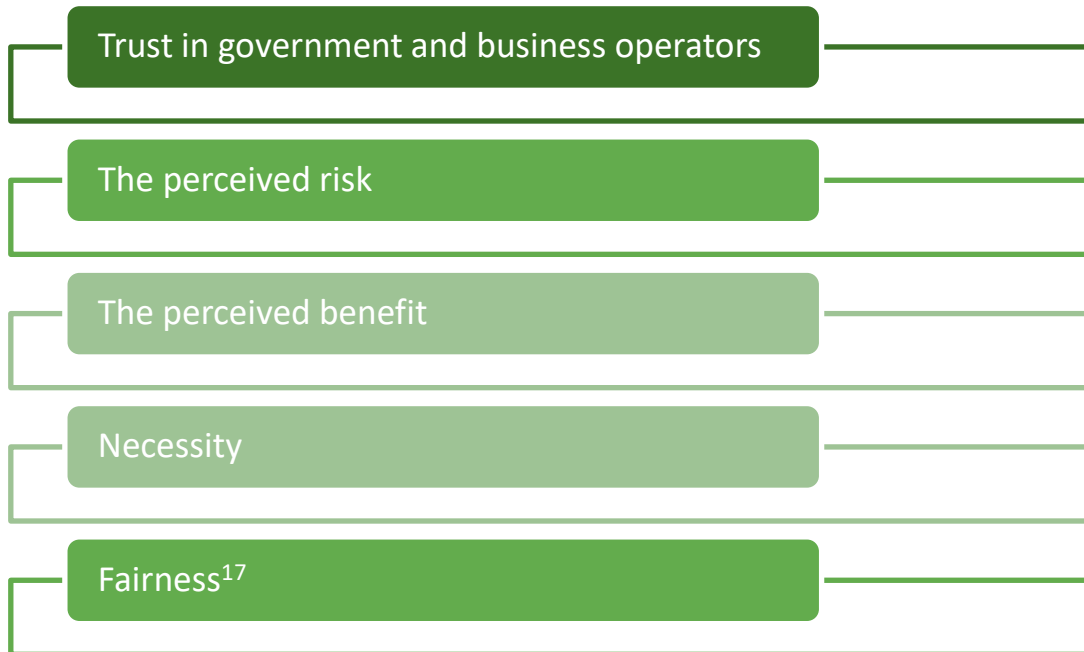
Social acceptance in this context refers to the levels of public support for, and acceptance of, a green city project and more often than not, many of the barriers for achieving successful greening projects at the implementation level can be considered as a manifestation of a lack of social acceptance. Furthermore, factors associated with the degree of social acceptance include also trust in businesses and the perceived risk, benefit, necessity, and fairness overall.[18] Social acceptance is easily distinguished across three dimensions,[19] namely socio-political, community and market acceptance. The inserts below explain these three dimensions of social acceptance in more detail.

Table 7 - Three dimensions of social acceptance

Socio-political acceptance:
The social acceptance on the broadest level by key stakeholders and policy actors. Several indicators demonstrate that public acceptance for green city projects and policies is high in most Member States. However, this could easily mislead policy makers to believe that social acceptance is not an issue at the local level, whereas there is indeed a problem.

> **Community acceptance:**
>
> The specific acceptance of siting decisions and green city projects by local stakeholders, particularly residents and local authorities. This is where many argue that people support projects typically when they are in their own backyard (NIMBY). Typical factors that seem to influence community acceptance are factors related to distributional justice (How are costs and benefits shared?), procedural justice (Is there a fair decision-making process giving all relevant stakeholders an opportunity to participate?),[20] and whether the local communities trust the information and intentions of the investors or actors from outside the community.

> **Market acceptance:**
>
> The process of market adoption of an innovation by consumers through a communication process between individual adopters and their environment (Rogers 1995). For instance, despite the fact that consumers nowadays demand increasing amounts of green energy,[21] in all likelihood this supply would probably come from other distant localities.

Another challenge is ensuring an equitable representation of stakeholders in order to ensure that underrepresented groups in green city projects and their specific priorities are not ignored. Similarly, one needs to be aware that issues which have higher representation or voting turnouts tend to be addressed more quickly than other lower vote-grabbing issues. A related challenge is offered by the fact that not everyone is equally aware and educated on the green city issues at hand. While today's citizens have more access to information via digital tools, not everyone is digitally competent enough to partake, leaving certain groupings in the dark.[22]

3. Public participation and stakeholder involvement in the co-creation of Green Cities

There is growing support for involving people in urban planning and that bottom-up co-creation opportunities can be used in order to involve citizens as decision-making partners rather than just passive recipients of top-down decisions and design. People can have more insights and social experiences when they collaborate in groups and can achieve better results than any single individual. Rather than asking for citizen commentary on already set initiatives, collaborative techniques view city populations as agents of positive change, giving communities tools for direct involvement in addressing their needs, finding solutions, influencing decisions and achieving better outcomes.[23]

Figure 13 - Collaborative techniques
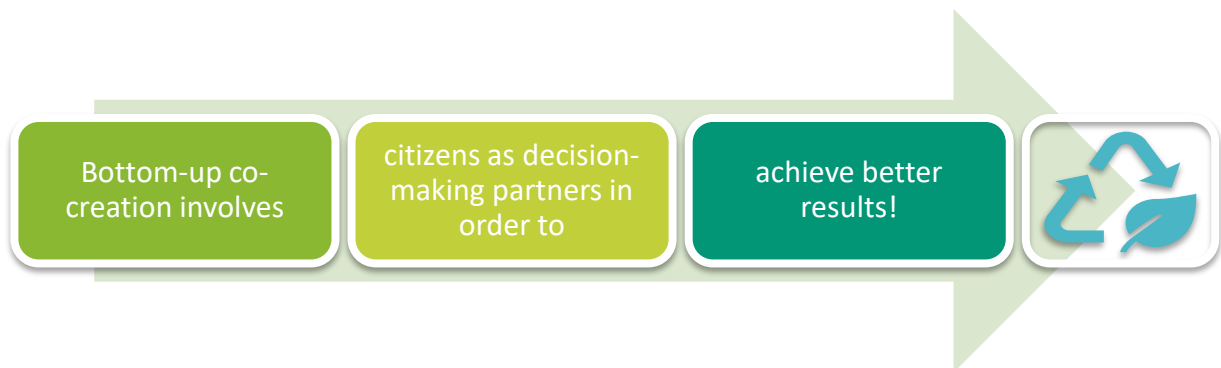
There is no doubt that technology can play a critical role in community engagement when it comes to determining the cultural, economic, political and social dimensions of urban life. However, such a techno-centric approach could also exclude vulnerable groupings from the broader issues around the relationship between public participation, urban development and technology. Similarly, decisions relating to land-use change are often highly contested and any greening project is likely to affect a multitude of stakeholders. Despite a high general popularity for greening projects, this alone is not a sufficient indication of public acceptance for the actual implementation of certain projects and simply cannot be taken for granted. However, participatory methods may offer an approach to accommodating the issues raised by the increased opposition to such developments, and consequent refusals for planning permission[24]. It follows that decision makers need to address the issue of social acceptability by stakeholders concerned if the project intends to take off.

Figure 14 - Participatory methods enhance social acceptance

Participatory methods	Social acceptance and increased permission

Besides the necessity of community engagement, there are also a number of underlying conditions or enabling environments that can facilitate the success of policies promoting urban resilience in the face of climate change. Table 8 below highlights the seven broad conditions and enabling factors that can facilitate actions across green cities.

Table 8 - Enabling factors for climate actions in cities. OECD (2022).[25]

Good governance	• Participatory • Collaborative • Adequate local capacity
Local champion	• Policy Coherence (horizontally and vertically) • Supporting and scaling local climate actions • Establishing an enabling governance framework
Trigger factors	• Disaster event • Long term spatial or urban planning traditions • Grassroots movements • Externally driven climate interventions
Local capacities and resources	• Human resources • Financial resources • Technical know-how • Data and information
Decentralisation	• Delegating power and resources to local authorities • Local authorities are best placed to respond local needs • The process needs to be carefully managed
National governments	• Policy Coherence (horizontally and vertically) • Supporting and scaling local climate actions • Establishing an enabling governance framework
International organisations	• Facilitate pilot policy experimentations • Provide platform for peer learning • Can help drive local climate actions

What are the links between public participation, stakeholder engagement and co-creation?

In general, public participation is widely viewed as a basic condition of decision-making at all levels of governance (i.e., EU level, national level, community level, city level) in the context of smart and evolving cities. There are many levels to engaging with stakeholders, ranging from actively being part of the decision-making process, to being heard and involved in part, to just being told what is happening. In this section we attempt to discuss the various differences between public engagement terms and the important precursors to meaningful engagement with stakeholders.

- **Public participation** is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process and is a two-way collaborative problem-solving process with the goal of achieving better and more acceptable decisions. (IAPP 2007)[26]. The desirability of public participation can be justified under the following four headings:[27]

Figure 15 - The basic elements of public participation

Democratisation	Legitimacy[28]
Information Exchange	Tackling of Conflits

Public Participation
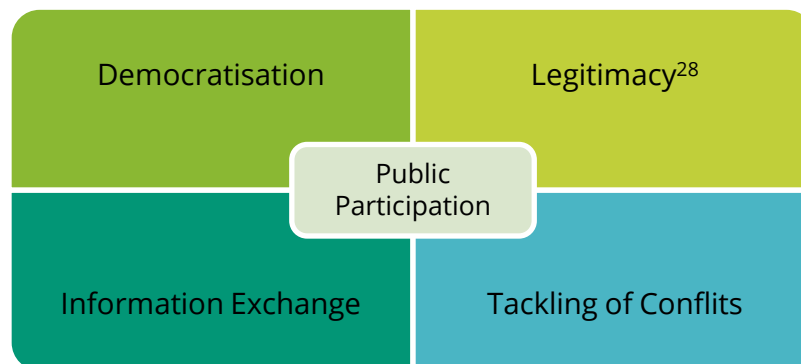
- **Stakeholder engagement** refers to when an individual or group of people seek to address issues of public concern or policy in order to make a change in their community. This includes communities working together in both political and non-political ways, and which share a common set of interests for interacting with government and agitate for change. Building critical mass in public engagement for green cities can ensure higher representation or voting turnout for green city projects, thus increasing pressure on politicians and authorities involved. Stakeholder engagement is however quite different to stakeholder management since engagement implies a willingness to listen and change outputs as a result of stakeholder engagement.
-

Figure 16 - The basic elements of stakeholder participation

Interaction with the Government	Higher Representation
Stakeholder Engagement	
Increased Pressure on Politicians	Willingness to Listen
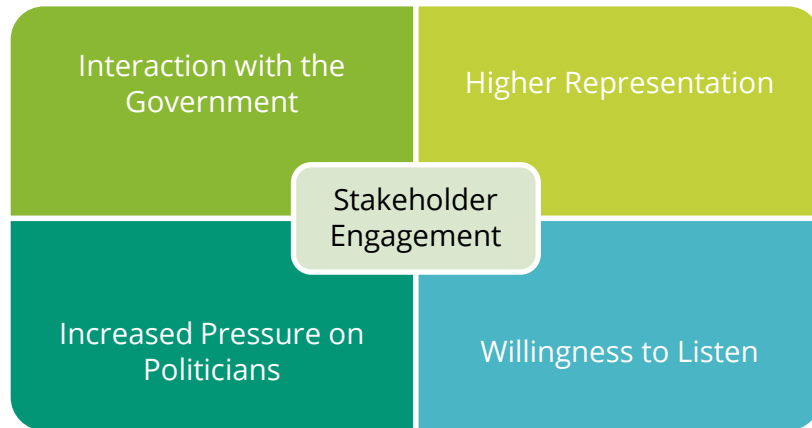
Nonetheless, participation in planning remains a massive challenge in green city planning, with little development of new approaches involving the lay public in the planning process. The means for participation in planning that are usually provided are based more on informing or hearing (consulting) rather than participation (listening), influencing only a few aspects of the planning process as such.[29] Consequently, it is important to understand the elements that differentiate between meaningful engagement from other types of public involvement, and the different types of stakeholder engagement tools used. Table 9 shows what these basic elements should include[30]:

Table 9 - The elements that differentiate between meaningful engagement from other types of public involvement.

- Sufficient notification of the engagement activity/process
- Information that is comprehensible and accessible to the public
- A reasonable timeline for participation
- The appropriate level of engagement is utilised
- Sensitivity to public/stakeholder values
- The process is adaptive to the needs of participants and
- Results are transparent and communicated in a timely manner

Although there is strong evidence that effective engagement can bring many benefits to the research process, it is important to approach engagement critically and be aware of some of the challenges and limitations that may be faced. Establishing the motivations behind stakeholder engagement is a critical step before any engagement is undertaken, and different approaches can lead to different results, or be used to perverse the project toward premediated directions that simply reinforce existing privileges or to rubber stamp these projects.[31]

> ⚠️ **Before any stakeholder engagement, it is important to discover the underlying motives in order to avoid reinforcing existing privileges.**

Table 10 below provides a quick summary of typical stakeholder engagement methods, how to recognise the type of engagement being solicited and which are truly participative and which are not. The 'Spectrum of Public Participation' developed by the International Association of Public Participation (IAP2, 2014)[32] identifies five levels of public participation that can help clarify where the public stands in planning and decision-making, and how much influence the community actually has.

Table 10 - The 'Spectrum of Public Participation' developed by the (IAP2, 2014).

	INFORM	**CONSULT**	**INVOLVE**	**COLLABORATE**	**EMPOWER**
PUBLIC PARTICPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decision.	To work directly with the public throughout the process to ensure that public issues and concerns are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
PROMISE TO THE PUBLIC	To keep the public informed.	To keep the public informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	To ensure that public concerns and issues are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	To look to the public for direct advice and innovation in formulating solutions and incorporate advise and recommendations into the decisions to the maximum extent possible.	To implement what the public decides.
EXAMPLE TOOLS	▪ Fact sheets ▪ Websites ▪ Open houses	▪ Public ▪ Comment ▪ Focus groups ▪ Surveys ▪ Public meetings	▪ Workshops ▪ Deliberate ▪ Polling	▪ Citizen Advisory ▪ Committees ▪ Consensus-building ▪ Participatory ▪ decision-making.	▪ Citizen juries ▪ Voting and ballots ▪ Delegated ▪ Decisions

Please refer to output PR2 - A1 for further details on community participation theory.

Co-creation on the other hand is quite different from public participation or stakeholder engagement; and offers a new approach to developing urban spaces jointly between urban planners, professionals and citizens.

Figure 17 - The definition of co-creation

Co-creation can be defined as the sharing of information and ideas amongst stakeholders which allows for *"participation, engagement, and empowerment in, developing policy, creating programs, improving services, and tackling systemic change with each dimension of society represented from the beginning"*.[33]

Co-creation efforts help build upon the cultural and political values of urban communities and embed collaboration in the very design of urban projects by simply viewing people as proactive citizens capable of culture changes over the long term. Citizen-centered and co-creative approaches help people form and promote their own decisions, create new stakeholder maps, build capacities for self-government, and develop open-ended civic processes.[34]

Figure 18 - The notion of co-creation
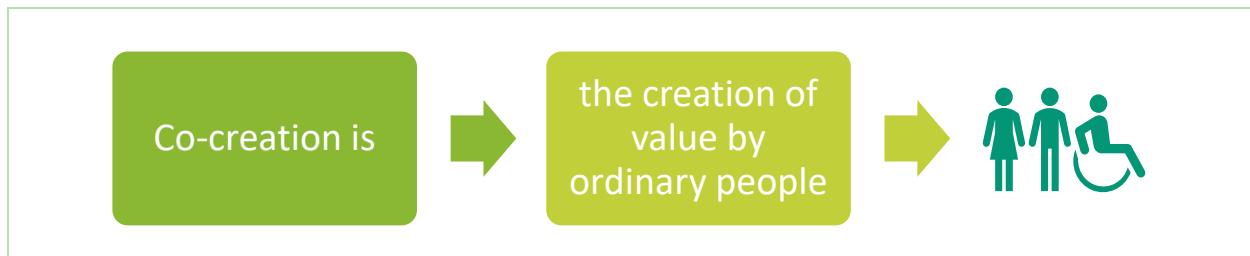
What further distinguishes co-creation from other participation initiatives is the involvement of these stakeholders at the very beginning of the decision-making process starting with the identification of the problem.[35] Co-creation also offers an opportunity for the integration of relatively new online and offline participatory tools and processes which help reduce public sector costs and increase stakeholder satisfaction.[36]

Figure 19 - Basic stages of co-creation in new service design[37]
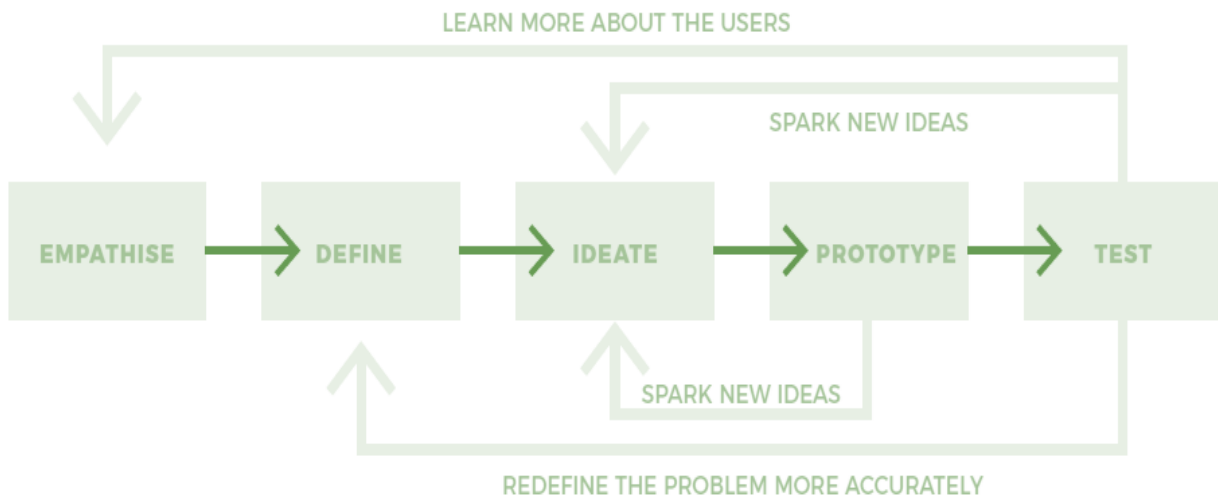
A "**Glossary of civic engagement and Green City terms**" or terminology can also be found in Annex 1.

4. Getting involved in your community's Green City future

The teaching approach envisaged for this output is intended for the upskilling of grassroot communities and citizens in stakeholder participation in Green City projects, focusing on bottom-up innovation, driven by the communities themselves.

Greenvolve's efforts are intended for adult citizens and the general public to increase their knowledge on participating constructively in green city projects that achieve their goals, build technical skills and capacities, voice their environmental, social or other concerns, represent vulnerable citizen groupings (like migrants, refugees, marginalised communities, seniors, unemployed women etc.), encourage co-creation activities between grassroots communities willing to tackle communities' challenges for a better future.

This short, non-exhaustive chapter provides examples of technical, relational and sustainability skill development amongst the community which can serve to instigate more confidence in stakeholder consultations.

STEP 1 - Transferable skills required for effective public participation

Genuine public consultation and participation requires that stakeholders are not only involved and integrated in constructive exchanges, but also that they receive adequate training in order to appreciate and participate effectively in complex greening projects.[38] However, individual initiative is very dependent on the level of awareness on the potential of green city elements, having confidence in their own contribution to influence these projects, and being willing to act.

Figure 20 - The elements necessary for individual initiative
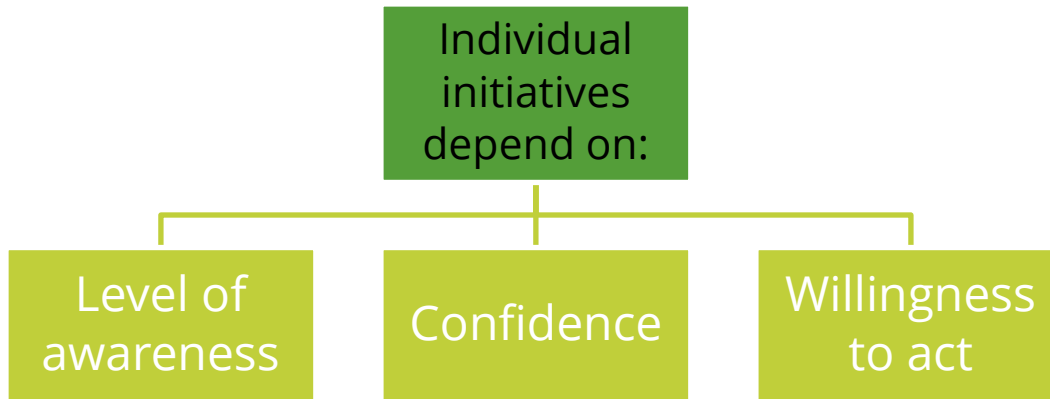
Greenvolve's strong focus on deprived areas and disadvantaged groups means that priority needs to be placed on building the capacity to make a difference where it matters the most – by improving and developing knowledge, skills and attitudes to participate in a green city public consultation. Typical transferable skills that are required in effective stakeholder consultation include problem solving, negotiation, managing emotions, empathy and communication, and work with knowledge and values to connect, reinforce and develop other skills and build further knowledge.[39]

Figure 21 - Typical transferable skills
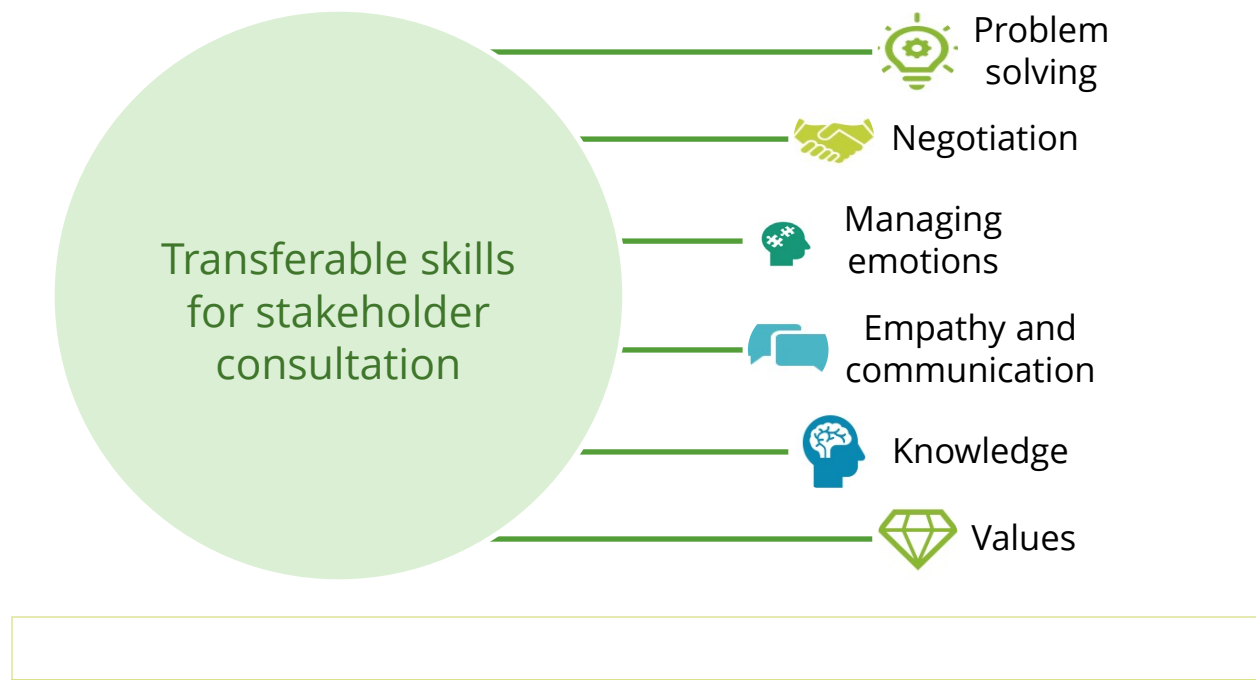
The GreenComp[40] study suggests that the building blocks for teaching people the basics of sustainability should include twelve skills or 'competences', of skills that make up the building blocks of teaching and learning about sustainability. These learning blocks are immensely relevant to Green City projects and a great start to ensure better green city participation.

Source: https://green-comp.eu/

Table 11 - Twelve teaching blocks, under four areas of competence, that should form the basis of learning about sustainability[41]

AREA	COMPETENCE	DESCRIPTOR
1. Embodying sustainability values	1.1 Valuing sustainability	To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values.
	1.2 Supporting fairness	To support equity and justice for current and future generations and learn from previous generations for sustainability.
	1.3 Promoting nature	To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems.

2. Embracing complexity in sustainability	2.1 Systems thinking	To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.
	2.2 Critical thinking	To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.
	2.3 Problem framing	To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems.
3. Envisioning sustainable futures	3.1 Futures literacy	To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future.
	3.2 Adaptability	To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk.
	3.3 Exploratory thinking	To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.
4. Acting for sustainability	4.1 Political agency	To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.
	4.2 Collective action	To act for change in collaboration with others.
	4.3 Individual initiative	To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet.

Consequently, there is a variety of transferable skills that could enable community stakeholders to navigate and meet the evolving demands of the green city projects, as shown in Figure 22.

Figure 22 - Transferable skills that could enable community stakeholders to navigate and meet the evolving demands of the green city projects

Better understanding of sustainability challenges and environmental policy	Building trust, resolving conflict, and active listening	Independence, creativity, flexibility and critical thinking
Connecting with other stakeholders in highly collaborative settings	Improved communication and relationship-building capabilities	Stakeholder management and shared value creation
Conducting scoping and knowledge sharing on key gaps, challenges, opportunities	Access to resources and knowledge pools mastering complex problems	Improved digital skills and soft skills on development control tools available

Increased awareness on emerging issues related to social development; like human capital, and work force, climate finance, circular economies, sustainable infrastructure, sustainable tourism, sustainable agriculture, sustainable forestry; integrated resource planning and/or management; sustainable finance; green business, jobs and technologies; and/or related fields.

STEP 2 - How to get involved in green city planning

In view of the current political climate, people are finding less time or interest to participate in citizen consultation efforts aimed at a more sustainable lifestyle, better distribution of resources or cleaner environments. Public consultations for green city planning have the potential to give citizens a feeling of control, empowerment, and ownership of projects or policies by converting their energy into local action for a sustainable and eco-friendly environment.

Figure 23 - The benefits of public consultation for citizens

Public consultations give citizens a feeling of:

Ownership

Empowerment

Control

Consequently, getting involved in urban planning in your community can make the difference between a plan for the community and a plan by the community.

Table 12 – Ways one can get involved in green city planning

You can get involved in planning a better and brighter future for your community in a variety of ways:
Pay attention to the area's physical and topographical environment in order to understand the study area or your **neighbourhood's** physical circumstances, geology, climate, land use and resources and identify the specific needs of the project from the green city project.
Pay attention to the area's history and planning development over the years.
Pay attention to the social environment and considerations and help build a sense of community while **recognising** diversity. The existing social fabric of a town or city is a crucial component in the expansion or revitalization of a particular area. Planners must pay attention to the resources available to different demographics in the region, like public transportation.

Pay attention to the economic environment. The number and types of businesses will impact how an area is laid out. Residents' socioeconomic levels as well as any employment or economic trends in a region can help planners develop an urban area.

Pay attention to the proposed plans and details, and ensure space is made to include nature and open or recreational spaces.

The design of a public space needs to be original to its culture to ensure that it truly belongs to that neighborhood.

Pay attention to mobility issues like public transportation, pedestrian accessibility, micro-mobility, etc.

Pay attention to key services and utilities currently in use and how these will adapt to the proposal (energy, sanitation, and communication), while remaining vigilant that there is no disparity in the distribution of these services throughout the city.

Look up greening best practices elsewhere.

Put your thoughts on paper. Proper documentation can help untangle complex issues and helps understand the key motivations and barriers from a more complete perspective.

Find information about local planning procedures.

Take advantage of all information already public and published in official websites to get to learn about the situation.

Check with your local institution about their participatory policies, online tools and platforms.

Take action as a volunteer, activist, lobby group or via social entrepreneurship in related efforts being undertaken by the broader community.

Help carry out plans agreed with stakeholders and volunteer time and energy to the cause.

Champion a specific issue and rally support from like-minded citizens.

Speak to as many people as possible and make them aware of the local and global, current, future contexts, and how they are connected.

Maintain a focus on accounting for non-financial benefits and social returns, such as clean air or improved well-being.
Help build trust and understanding between parties and stakeholders.
Manage personality conflicts and stay focused on the common good issues.
Watch out for political or commercial maneuverings, major interest groups, profitability or sabotage especially when Public Private Partnerships (PPPs) are used to deliver greening projects.[42]
Fight back against unrealistic deadlines or shoddy background documentation.
Fight back against unrealistic deadlines or shoddy background documentation.
Align business models or cases towards a shared vision for the green city project and foster greater collaboration between stakeholders.
Watch out for green gentrification which not only affects local rents and tax burdens, burdening low-income residents, but can also erode feelings of belonging and attachment to place.[43]

STEP 3 - Participating in the planning process

Planning ensures that the right development happens in the right place at the right time, benefiting communities and the economy. It plays a critical role in identifying what development is needed and where, what areas need to be protected or enhanced and in assessing whether proposed development is suitable.[44] The planning process also provides an opportunity to advocate a green city issue and have it addressed as part of the overall development of the community project. For instance, if you are interested in increased bicycle lanes in your community, you can have that specific issue addressed and have new initiatives included in the plan by getting involved in the planning process, such as the creation of dedicated bicycle lanes or new incentives for electric bicycles to work. Typical stages in the planning application process in Europe include the following steps:

1) Applicant submits a planning application.

2) Notification and consultation with community and statutory consultees; open for not less than 21 days typically and with specific publicity requirements depending on the application type.

3) Determination of planning application in accordance with the development plan unless material considerations indicate otherwise; involving a number of weeks (8 circa) to make a decision on minor applications and a number of weeks (13 circa) for major applications.

4) Decisions are made by Planning Officers on smaller developments, or by Planning Committees for larger and more controversial developments.

5) Option to appeal decisions remains available for applicants should the local planning authority refuse to give planning permission, grant it subject to unacceptable conditions or not process an application within the statutory time limit.

The most intense period of public participation in green city projects is typically during the scoping and feasibility required by development control or an environmental impact assessment (EIA), to help determine whether the green proposal can proceed. Most information about stakeholder concerns, issues and opportunities is often collected from targeted consultation and during a 'Scoping' exercise which is mandatory in many jurisdictions and an important step to help identify more accurately the full range of potential impacts from the green city project. The flowchart below shows a typical decision process for an EIA. Figure 27 below introduces the key components for typical EIAs or development control consultations, and the corresponding public disclosure and consultation flow. For more detailed overview of planning and development control plays out across most Member States, please visit a publication by the Council of Europe (2015) titled "*Handbook on Territorial Democracy and Public Participation in Spatial Planning*"[45] which provides an overview of public participation in spatial planning and spatial development in general.

Figure 24 - Key components of the EIA decision and the consultation process

EIA Decision Process		Public consultation and Disclosure
Scoping (Scoping Report)		Scoping Consultation (Involve stakeholders in initial "scoping"
Impact Assessment (Specialist environmental and social studies)		Information Disclosure and Consultation (Disclose project info, consult on the scope of impacts, identify potential mitigation measures)
Draft EIA and Management Plans		Consultation on the Draft EIA (Disclose of and consult on the draft EIA (Respond to comments on the draft EIA)
Final EIA and Management Plans		Incorporate feedback to final EIA (Respond to comments on the draft EIA).
Authority Decision		Authority Decision

Participating in the planning process is the best way to bring forward your ideas and concerns in green city projects, while contributing to your community and the spaces around you. Table 13 lists the typical ways the general public and seniors can get involved in helping plan for green cities during the planning process.

Table 13 - Ways of public involvement during the planning process

Attend public meetings or planning workshops related to the green city project where you can learn more about the proposed project, learn about your community, and provide feedback or first reactions.

Participate in data gathering exercises like brainstorming events, surveys or focus groups, and follow up on results in order to understand the opportunities and barriers.

Identify stakeholders, the target audience and any outreach methods to see if other people share your concerns or to learn how to plan and improve your community.

Speak to as many people as possible and help collect data or feedback from the neighbourhood to help plan and design the community.

Establish the data and background information you need for further analysis.

Serve on a local council committee, non-government organisation or planning commission in order to help shape your community, participate in the decision making, identify opportunities and challenges, and set goals and targets.

Commit time for thoughtful planning of open or recreational spaces.

Identify alternatives and examine alternate options or courses of action that might have unintended consequences.

Determine the resources needed and apply circular economy principles.

Encourage a change in attitude while supporting local provision of goods and services and avoiding unbridled urban development in vulnerable areas.

Ensure a monitoring plan is in place.

Be a leader and help carry out the plan by volunteering your time and efforts, or championing a specific issue.

If you do intend to attend stakeholder meetings, participants should try and be as prepared as possible in order to participate actively. Citizens should try and be:

Interested in meaningful engagement, and sympathetic to divergent or minority views.

Open for trust to be strengthened and appreciate small overall gains for others too.

Moderate and realistic in terms of expectations and context focused.

Fair and reasonable; and willing to consider trade-offs.

Aware of overall economic, social, and environmental risks.

Aware of your rights in the planning process.

Aware of community attitudes, resistance to change and "Not in my backyard" (NIMBY) standoffs.

Digitally competent to use online representation and feedback forms or consultation tools and engage on their own terms and in their own timeframe.

Well prepared and aware of overall motivations, culture and behaviour.

Active online with access to all planning material, responding to online calls for feedback, questionnaires, studies or attempts at stakeholder information and engagement.

Aware of local details which can bring meaning and specificity to a process; or identify places of vitality and gathering that already exist within the community.

Inclusive and representative of the bigger picture and community needs rather than personal needs.

Clear about your expectations and where the plans can be improved.

**STEP 4 - Roping in other stakeholders to create critical mass**

Joining forces with like-minded stakeholders interested in specific aspects of greening projects can provide a lot of advantages, while ensuring critical mass, bolstering confidence in participation, and sharing tasks. Consequently, it is also important to identify who other key stakeholders are, and what their needs or wants are in order to establish with whom to interact and share alliances with; especially if you are seeking to empower your community or marginalised groups in your neighbourhood. Mapping stakeholders as a layman can also provide insights about conflicts between individuals, organisations, or groups; providing an opportunity to expect and mitigate potential disputes which can be either avoided or addressed right at the onset.

Figure 25 - The advantages of stakeholder mapping
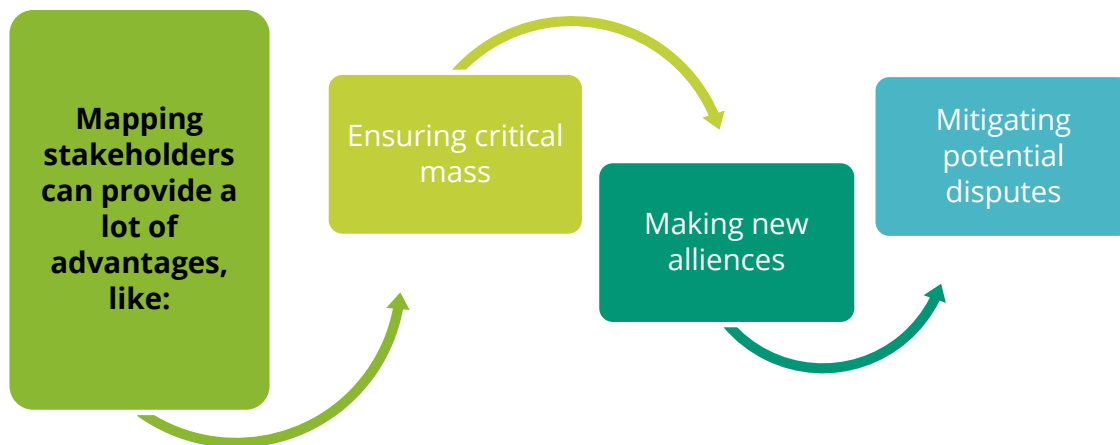
Prioritising stakeholders or "stakeholder mapping" can be done according to a pre-determined set of characteristics and according to the level of the stakeholders' relative interest in the issue or decision being considered, versus their level of influence over that issue or decision, or salience of the matter to them.[46] Figure 29 below provides an indication of basic criteria for stakeholder mapping. Table 18 provides a non-exhaustive list of potential stakeholders interested in Green City projects.

Figure 26 - Basic criteria for stakeholder mapping
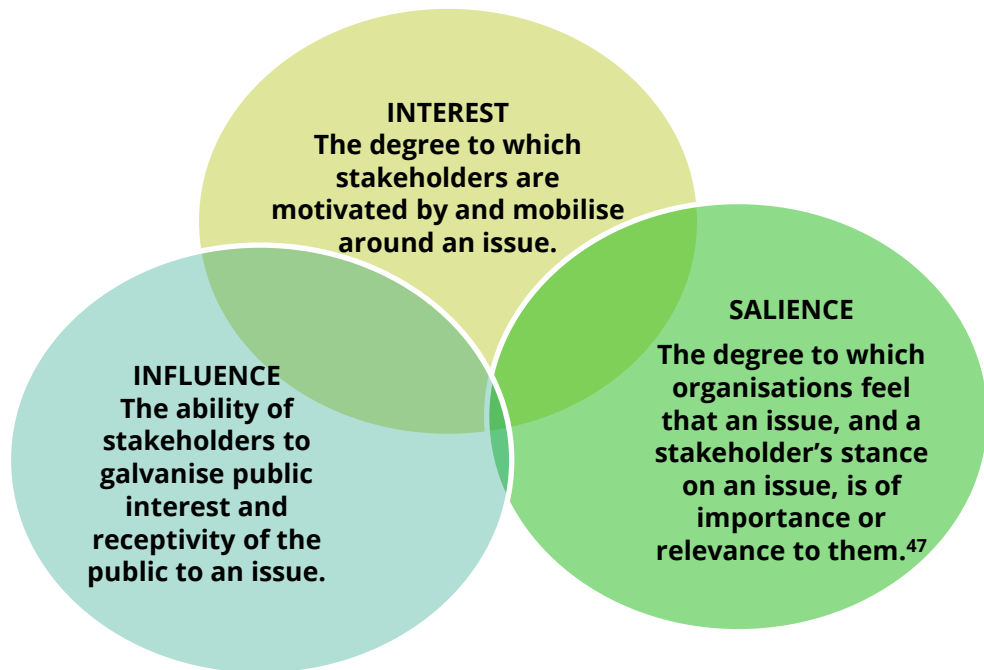
The next step is to carefully analyse the stakeholders you have listed according to the following lines of engagement:[48]

- *What are their objectives (or hidden agendas)?*
- *What do they have to lose or gain?*
- *How much influence do they have?*
- *Are they available to participate?*
- *Will they be willing to contribute?*
- *Are they capable of contributing?*

Table 14 - A list of typical community stakeholders to seek out include:

A list of typical community stakeholders that tend to have an interest in green city project and consultation includes:
▪ Stakeholders directly affected by your organisation's operations, both positively and negatively.
▪ Stakeholders who have an interest in, or influence over, organisation operations.
▪ Stakeholders who have knowledge about the impact of the operation.
▪ Stakeholders who are partnering with the organisation to address the impacts of the operation.

- Stakeholders who have instigated their own initiatives to address impacts associated with the operation.
- Stakeholders who are part of the broader community (whether local, regional, national, international) who have expressed an interest in, concern with, or influence over the operation.
- Authorities or regulators at an international, national, provincial or local level.
- Authorities who control or issue licences or permits to operate.
- Authorities or regulators who exercise control over a particular sector or industry.
- Authorities responsible for social and economic development, infrastructure and service provision, town or regional planning.
- Contractors and Suppliers.
- Families including spouses/partners and children.
- Non-neighbouring communities who are impacted by the project.
- NGOs (international, national and local).
- Community-based organisations such as support groups, recreational and sporting groups, women's and children's groups and youth groups.
- Welfare and service organisations.
- Tertiary and vocational education and training institutions.
- Local councils, provincial or district offices.
- Local businesses and associations e.g., Farmers' Associations or Chambers of Commerce
- Religious organisations and associated community or support groups.
- Ethnic & indigenous groups.
- Traditional community leaders such as councils or family heads.
- Political groups and local/state representatives.
- Political parties, elected representatives of local and state authorities.
- Ministries of environment, infrastructure, health, welfare, trade and industry.
- Regional or national governments.

5. Main Take-Aways

So, here's the gist of everything we've gathered about participation in sustainable green city project planning. The planning process for green cities provides many opportunities for making change happen, including creating new goals for the community and working toward new development strategies. There are lots of ways to take action in the planning process, whether you're interested in helping to prepare a successful plan or you want to work more deeply on issues raised by the plan. While Green infrastructure (GI) is slowly being integrated in most policy documents, briefs or development plans, there often seems to be insufficient consideration given to the complex interactions between, for example, citizens, housing, flood management, food growing and biodiversity. Table 15 below indicates what take-aways must remain at the heart of any Green City projects.

Source: Images by unsplash

Table 15 – The Main Take-Aways

Citizens must be aware of an area's strategic greening goals and appreciate how those goals contribute to mitigating the environmental impacts of new development and creating beautiful places.

Planners and politicians need to make people aware of the local, global, current, and future contexts, and how they are connected.

Efforts must be part of a shared vision which is adequately planned, well resourced, delivered on time and managed effectively from the start.

Citizens, planners and politicians must think creatively about how to generate capital and revenue to ensure that the projects are well-funded not only for completion, but also for ongoing management and maintenance.

Citizens must think out of the typical urban planning mindset which is less focused on economic outputs which prevent us from adopting more dynamic, integrated and forward-thinking solutions.

Green City projects offer interesting alternatives to not only solving specific urban challenges but also for realising other secondary benefits.[49]

Active Citizens need to share their concerns or enthusiasm, and bring other people on board by starting with small activities and interventions which don't require a lot of effort or costs.

Planners need to keep other stakeholders informed and involved.

6. Further Reading

For further reading on getting involved in Green City projects, please visit the following online guidelines and manuals, or https://greenvolve-project.eu/.

- Livable Streets - A Handbook of Bluegreengrey Systems. Version 2. (2022). https://bluegreengrey.edges.se/article/the-bluegreengrey-manual-version-2-0-is-now-available-both-in-english-and-swedish/

- How to make a great place Placemaking stories and lessons in Singapore from communities and designers https://www.ura.gov.sg/-/media/Corporate/Resources/Publications/Books/PlacemakingBook_How-to-make-a-great-place.pdf

- Placemaking: What If We Built Our Cities Around Places? (2022). https://uploads-ssl.webflow.com/5810e16fbe876cec6bcbd86e/6335ddc88fbf7f29ec537d49_2022%20placemaking%20booklet.pdf

- Smart Cities Made Human Playbook https://oecd-opsi.org/toolkits/smart-cities-made-human-playbook/

- Shaping Co-creation & Collaboration in Smart Cities. (2022). https://unhabitat.org/programme/legacy/people-centered-smart-cities/shaping-co-creation-collaboration-in-smart-cities-a

- The Smart City Guidance Package. A roadmap for Integrated Planning and Implementation of Smart City projects. (2019). https://smart-cities-marketplace.ec.europa.eu/news-and-events/news/2019/smart-city-guidance-package

- Taking Action for Urban Nature. Citizen Engagement Handbook. (2022). https://www.naturvation.eu/sites/default/files/result/files/citizen_engagement_handbook.pdf

- The sustainable livelihoods approach: Toolkit for Wales (2013). https://policy-practice.oxfam.org/resources/the-sustainable-livelihoods-approach-toolkit-for-wales-297233/?pscid=ps_ggl_gr_Google+Grants+-+Policy+%26+Practice_Policy+and+Practice+-+DSA&gclid=Cj0KCQjwjryjBhD0ARIsAMLvnF9WoAsFmix2hOwWfAciDiE_Y7z9lvW-sY8KpuhR691uMz3SvljVB58aAnloEALw_wcB&gclsrc=aw.ds

- Toolkit on Accountable and Transparent Service Delivery at a Local Level. About participatory mechanisms and civil society interventions (2015). https://www.vng-international.nl/wp-content/uploads/2015/06/Toolkit_Accountable_and_Transparant_Service_Delivery_at_Local_Level.pdf

Annex - Glossary related to civic engagement and green cities

The following table presents the acronyms used in Green Cities, in alphabetical order. These are being reproduced from the https://www.eea.europa.eu/themes/sustainability-transitions/urban-environment/urban-green-infrastructure/glossary-for-urban-green-infrastructure

Other
https://www.caryinstitute.org/sites/default/files/public/downloads/gg_term_glossary.pdf

Biodiversity: Biodiversity is the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part. It includes diversity within and between species, and between ecosystems (Source: Convention on Biological Diversity).

City*: Term used generically to denote any urban form but more often applied to large and densely populated urban settlements (Source: GOOD). In Europe, there are different accepted approaches to describing the boundaries of a city: (1) focused on social or cultural aspects (e.g. based on administrative units, population density), (2) focused on biophysical layout (e.g. land cover, contiguity of built-up areas), and (3) focused on functional aspects (e.g. labour market and commuting patterns). In order to capture the whole performance of interconnected urban GI elements, we have considered two complementary spatial delineations within a city: inside the city and the urban fringe.

Connectivity: Term to express how a landscape is configured and how it allows species to move through its different elements (Source: SWD/2013/0155 final). A high degree of connectivity is generally linked to low fragmentation.

Core city: This is one of two spatial delineations of cities (core city and functional urban area) defined by the Urban Audit project (Source: Eurostat – Urban Audit). The core city level is mainly defined by its administrative and/or political boundaries; therefore, data are directly relevant to policy-makers. The core city is the administrative reference unit for many socio-economic indicators.

Counterurbanisation or de-urbanisation: The social and demographic process originated by the movement of people from cities to the countryside or rural areas, seeking

a better quality of life (Source: Urban Geography Glossary). This is the inverse process of urbanisation.

Degree of urbanisation: The degree of urbanisation is a classification system described by Eurostat, which classifies local administrative units (at LAU2 level) as cities, towns and suburbs, or rural areas based on a combination of geographical contiguity and minimum population thresholds applied to 1 km² population grid cells (Source: Eurostat – Degree of urbanisation).

Ecological networks: Biotic interactions in an ecosystem in which species (nodes) are connected by pairwise interactions (links) (Source: SWD/2013/0155 final). They include areas covered by a wide range of conservation measures, from a single ecoduct to intercontinental connected networks of protected and non-protected areas. Each GI element should play a role in the ecological network.

Ecosystem: An ecosystem is a community of living organisms (biotic components) — plants, animals and microorganisms — and their physical environment (abiotic components) that interact as a functional unit (Source: SWD/2013/0155 final). Living and non-living components are non-separable factors, they form a functional unit; each organism interacts with other organisms and with the physical conditions that are present in their habitats. Ecosystems are often grouped in units that have similar specific biotic and abiotic features.

Ecosystem based approach: The ecosystem-based approach is the combination of strategies and measures for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (Source: Convention on Biological Diversity).

Ecosystem services: Benefits that people obtain from ecosystems or their direct and indirect contributions to human well-being (Source: SWD/2013/0155 final). These include supporting services such as nutrient cycling; provisioning services such as supply of food and water; regulating services such as flood regulation and disease control; cultural services such as spiritual, recreational, cultural and aesthetic benefits.

Landscape fragmentation: The breaking-up of continuous landscape features into isolated or semi-isolated patches (Source: EEA multilingual environmental glossary).

Fragmentation creates barriers to migration or the dispersal of organisms and reduces the size of extensive ecosystems. Fragmentation may be induced by human activities (e.g., road infrastructures, dams) or by natural processes.

Functional Urban Area (FUA): This is one of the two spatial delineations of cities defined by the Urban Audit project, which consists of the combination of a city plus its commuting zone (Source: EU-OECD FUA). City administrative boundaries do not act as barriers between people living inside and outside the city. Therefore, a second definition level, which is complementary to the core city, was described. The FUA captures how far the functional influences of a city go beyond its immediate administrative boundaries (Source: Eurostat – Statistics Explained). This was formerly known as a Larger Urban Zone (LUZ).

Green Infrastructure (GI): A strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services (as defined by the EC's GI communication – COM/2013/0249final). GI is present in both rural and urban settings. In urban areas, many different features may be part of GI (e.g., parks, gardens, grassy verges, green walls or green roofs) as far as they are part of an interconnected network and are delivering multiple ecosystem services. These green urban elements (or blue if aquatic ecosystems are concerned) may be found within the city and in its peri-urban area.

Green Urban Area (GUA): A patch of vegetated land within the urban fabric for predominantly recreational use. GUA can also refer to suburban natural areas that are managed as urban parks (Source: adapted from Corine Land Cover classification). GUAs may include assets of different scales from green roofs or pocket gardens to large urban parks.

Green space: See Green Urban Area definition.

Imperviousness: Term referred to sealed soils that are characterised by artificial impenetrable surfaces. Imperviousness eliminates essential soil functions such as rainwater infiltration, natural groundwater recharge, food production, carbon storage or biodiversity shelter (Source: EEA Glossary).

Inner City: In this work, inner-city level considers all the elements contained within city boundaries, including both the city centre and its surrounding area.

Landscape: The traits, patterns and structure of a specific geographic area, including its biological composition, its physical environment and its anthropogenic or social patterns. An area where interacting ecosystems are grouped and repeated in a similar form (Source: EPAGLO).

Larger Urban Zone (LUZ): This definition has recently been replaced by the Functional Urban Area.

Land use: Land use describes the social and economic purposes for which land is managed (e.g., housing, intensive agriculture or transport). It comprises all the activities undertaken in a certain land-cover type (Source: GOOD).

Local Administrative Unit (LAU): LAUs form a system for dividing up the economic territory of the European Union (EU) for the purpose of local level statistics (Source: Eurostat – Statistics Explained). Generally, a LAU is a low-level administrative division of a country, ranked below a province, region or state. In the European Union, LAUs are basic components of Nomenclature of Territorial Units for Statistics (NUTS) regions.

Natural capital: Natural capital is the extension of the economic notion of capital (manufactured means of production) to environmental goods and services Source: SWD/2013/0155 final. Natural capital is the stock of natural ecosystems that yields a flow of valuable ecosystem goods or services into the future.

Nature-based solutions: Nature-based solutions are those actions that are inspired or supported by natural processes, which simultaneously provide environmental, social and economic benefits (Source: EC Research & Innovation – Policy topics). Such solutions are designed to bring natural features and processes to cities, landscapes and seascapes. They are often cost-effective approaches.

Peri-urban area****:** See Urban fringe definition.

Planning: The interdisciplinary process of evaluating, organising, and controlling the present and future development, and use of land and its resources (Source: UNUN). It is a technical, political and participatory process regarding the use of land (e.g., housing, green

areas), which includes an overall ecological evaluation in terms of specific uses as well as the evaluation of social, economic and physical contexts.

Suburbs**: See Urban fringe definition.

Suburbanisation: The process by which people, factories, offices and shops move out from the central areas of cities into the suburbs. This is often linked to increased business activities a decrease in the population in city centres. (Source: EC. 1999. Transport and the environment. A multi-country approach)

Urban area*: See City definition.

Urban Audit: The **Urban Audit** project is a joint initiative of the European Commission and Eurostat (coordinator), which represents a response to the growing need for information about cities (Source: Eurostat – Statistics Explained). The main objective of the programme is for to participating European cities to provide objective and comparable statistics on a voluntary basis.

Urban Fringe**: In this work, the urban fringe is considered as the area located on the periphery of a city. It represents the transition zone between the built-up area and the countryside, constituting the interface between the consolidated urban and rural regions. It is a zone of mixed land uses, where there is often competition for land use.

Urban Morphological Zone (UMZ): A set of urban areas lying less than 200 m apart and considered to contribute to the urban tissue and function (Source: EEA). UMZs are derived from CORINE Land Cover (CLC) by using urban core classes (residential, industrial and commercial, green urban areas) within a fixed distance (200 m) and adding enlarged core classes in case they fulfil certain neighbourhood conditions. UMZs better reflect the physical outline of cities, compared to administrative reference units.

Urban Sprawl: The unplanned and uncontrolled growth of urban areas into the surrounding countryside (Source: GOOD). Urban sprawl is the physical pattern of low-density expansion of large urban areas under market conditions into the surrounding agricultural areas. Development is patchy, scattered and strung out, with a tendency to discontinuity because it leap-frogs over some areas, leaving agricultural enclaves.

Urbanisation: Urbanisation is the increase in the proportion of people living in towns and cities (Source: Internet geography).

Vulnerability: Vulnerability is the degree to which a system is susceptible to and unable to cope with the adverse effects of injury, damage or harm (Source: IPPC. Methodological and Technological issues in technology transfer). This term normally refers to climate change effects. In this sense, urban vulnerability depends on the character, magnitude, and rate of climate change events and, on the other hand, on the city's sensitivity and adaptive capacity to them.

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