Creating Sustainable and Resilient Cities and Communities

A summary of expert perspectives from the 2019 TD Bank Group–GlobeScan SDG Leadership Forum on Goal 11: Sustainable Cities and Communities

February 2019

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150 attendees

from **19** countries

2 hours of online, text discussion

588 comments

What we set out to do

On January 16, 2019, a diverse range of stakeholders from civil society, government, and the private sector joined hosts GlobeScan and TD Bank Group for the Sustainable Development Goal (SDG) Leadership Forum for Goal 11: Sustainable Cities and Communities. This online, text-based discussion took place live over two hours, with participants from 19 countries. Guest contributors from 12 organizations acted as panelists, contributing to the discussion and sharing their expertise on the topic.

Together, we explored the critical role that green infrastructure and urban green spaces can play in building sustainable cities and communities. The focus of the forum was to explore the challenges faced by North American urban centres. This report summarizes the discussion and identifies key challenges and priorities for action. The report also shares results from several polls that participants were asked to answer during the Forum.

A full list of participating guest contributors is provided in the Appendix of this report.

The SDG Leadership Series is a set of 17 online discussions that bring together the world's leading thinkers to share and develop strategies for making progress on the Global Goals.

Contents

Introduction from GlobeScan

At GlobeScan, we believe leadership should inform, inspire, and help catalyze action to address each one of the 17 Global Sustainable Development Goals (SDGs). Our SDG Leadership Series is a set of online discussions that connects some of the world's leading and influential thinkers.

Our seventh SDG Leadership Forum was co-hosted with TD Bank Group to address SDG 11: Sustainable Cities and Communities. Our aim was to bring together a wide range of experts to explore how we can build sustainable and resilient cities and communities.

Today, North America is the most urbanized region worldwide, with 82 percent of its population currently residing in urban areas. This number is expected to steadily rise as population growth and economic progress continue to drive urban development. However, urban living can often limit access to nature and public spaces, and can also increase exposure to environmental polluters.

Growing urbanization will require significant transformations in the way we build and manage our urban spaces to ensure our cities are resilient, inclusive, and sustainable. Through green infrastructure and green spaces, the quality of urban living can be enhanced by promoting resilient and sustainable lifestyles for communities.

Concerted efforts, multi-stakeholder dialogues, and collective action are necessary for change, and our forums provide a space for stakeholders to learn, inspire fresh thinking, and share best practice examples to turn ideas into action. The examples shared with us during this forum were inspiring and demonstrate why effective collaboration is needed at all levels.

Through listening, engaging with and responding to a variety of stakeholders, progress can be made to bring us one step closer to a 2030 where we can all live more sustainably while maintaining social and economic dignity.

Chris Coulter
CEO, GlobeScan

Introduction from TD Bank Group

Cities are hubs for ideas, commerce, culture, and innovation. They are where we live, work, and play—and they are also home to most of the world's population, which is also expected to increase over the next few decades. Because of this, our cities are changing quickly. As they grow rapidly, they are tackling challenges with affordability, climate change, and shifts in the economy. But at TD, we believe that cities hold some of the greatest opportunities to help improve lives; that they can foster inclusive, sustainable, and equitable growth. They can help build a low-carbon economy, provide opportunities for people to connect through arts, culture, and green spaces, and create places that have a positive impact on overall health and well-being.

We believe that it is our purpose as a bank to help enrich the lives of our customers, colleagues, and communities. This is at the heart of our corporate citizenship platform, The Ready Commitment, designed to help create a more inclusive and sustainable tomorrow. While The Ready Commitment touches on all 17 of the UN Sustainable Development Goals, we prioritized the nine where we felt we could make the greatest contribution, including SDG 11. With collaboration from all sectors of society and participation from those who live in the communities we serve, we believe that together we can help create more liveable cities where people feel confident they can live well today and tomorrow. Platforms like this SDG Leadership Forum give us the opportunity to bring together experts to explore how we can develop innovative solutions for some of the most pressing urban issues of our time.

We chose to focus the Forum on green infrastructure and green spaces because of the prominent role they play in creating sustainable and resilient communities. There is a strong link between the quality of life in cities and how natural resources are used and are accessible to people. There is significant potential for collaboration and innovation to drive progress toward SDG 11, and each sector will play a unique role in this. TD is exploring how we can help make a meaningful contribution as part of The Ready Commitment. We believe that having a healthy and vibrant planet is foundational to building a better tomorrow. We are committed to helping grow and enhance urban green spaces, which provide countless benefits to society and the environment—from helping to absorb carbon from the atmosphere and flood mitigation, to providing spaces for people to connect in their community. This includes looking at the role of these spaces in creating resilient green infrastructure and more accessible, inclusive places for everyone.

A special thanks to all the contributors and co-host for taking the time to join this conversation and for sharing their experience and wisdom. The dialogue must not end here.

Andrea Barrack
Global Head – Sustainability & Corporate Citizenship
TD Bank Group

TD THE READY COMMITMENT

Executive Summary

Sustainable Development Goal 11 aims to create and sustain cities and communities that are inclusive, safe, and resilient. Green infrastructure and accessible green spaces play a critical role in enhancing urban living and creating sustainable, liveable cities.

There are a number of challenges facing urban centres and a multitude of potential opportunities to overcome these challenges. Sustainable, liveable cities require a collaborative and thoughtful approach to urban design and urban living that prioritizes climate-resilient infrastructure, inclusion, and accessible urban green spaces.

Our discussion highlighted the many benefits of green infrastructure and green spaces, including climate resiliency, physical health, and social cohesion. A number of inspiring examples were shared that demonstrate how green infrastructure can meaningfully contribute to sustainable living. These shared experiences help to inspire and inform future initiatives and demonstrate the level of commitment, creativity, and innovation that are needed to help to propel these initiatives and catalyze action.

In our efforts to enhance the liveability and sustainability of our cities, we must first understand the barriers that are preventing progress. Experts cite the leading challenges as:

- **Limited public engagement and awareness:** A lack of citizen involvement in policy development and decision-making significantly hinders the potential of climate-resilient infrastructure and green spaces in our cities. Due to limited public outreach efforts and a culture of disengagement, there is very limited public participation in community decision-making efforts, leaving governments beholden to private sector interests rather than the needs of the community.

- **Lack of coordinated governance through reliance on public sector:** The onus for investment and action on green infrastructure initiatives is largely placed on the public sector. This significantly inhibits progress as it limits the potential of green infrastructure to the interests and functions of government. Without meaningful engagement from the private sector and non-governmental organizations, there is limited potential for financing, research, and support of green infrastructure projects on a large and replicable scale. A lack of coordinated, partnership-oriented governance over green infrastructure initiatives results in action being stagnated.

- **Focus on short-term profitability over long-term, sustainable impacts:** With limited urban land availability and high prices, access to land is highly competitive. Governments are often outbid for land opportunities by private developers and investors who prefer traditional development opportunities. While traditional infrastructure offers immediate economic returns, green infrastructure pays off over the longer term, with benefits that are not easily calculable using traditional tools.

Experts shared actionable insights that should be prioritized in overcoming barriers and implementing green infrastructure and inclusive green spaces:

- **Fostering multi-sectoral collaboration and partnerships:** A central theme that emerged throughout the discussion was one of collaboration and engagement. In order to meaningfully transition to urban resiliency through green infrastructure, it will require multi-sectoral engagement and innovation including participation from government, private sector, investors, academics, and non-profit organizations. Each actor has a unique contribution to make which can be catalyzed through meaningful partnerships and playing to key organizational strengths.

- **Facilitating innovative funding/financing tools and techniques:** Financing tools and co-funding techniques provide significant opportunities to drive further implementation of green infrastructure by offering proof of concept and sourcing new means of investment support for projects. Charitable social impact investing, crowdfunding, taxation instruments, and regulatory programs and incentives are some of the potential innovative mechanisms that can be utilized to drive implementation. Public-private co-financing partnerships are also encouraged in order to finance green infrastructure developments.

- **Identifying and utilizing measurement tools to value green spaces:** Finding effective tools to measure the impact of green spaces can help to catalyze further development opportunities by demonstrating the value of these spaces. An innovative, multifaceted approach to valuing green spaces is required in order to capture social impact benefits on quality of life and well-being. Creating multi-sector partnerships to facilitate impactful studies and conducting social surveys and ecosystem valuation studies can help to demonstrate the value of green spaces and foster further implementation.

- **Engaging communities and encouraging civic-led initiatives:** Citizen engagement is an important component of sustainable living. Municipalities need to ensure that they are making meaningful, sincere and inclusive engagement efforts with local communities. The inclusivity of green spaces is limited by exclusionary design and planning processes. In order to ensure these green spaces are accessible and inclusive, the planning and design process must be also inclusive by engaging local communities and citizens throughout the process. Cities need to foster environments that encourage collective community voices in order to be adaptable and resilient.

The SDG Leadership Forum for Goal 11 demonstrates the significant potential for collaboration and innovation to drive green infrastructure and inclusive green space initiatives, and contribute to creating sustainable, liveable cities. Continuing to foster inclusive and diverse dialogue can help to build on best practice and scale collaborative efforts.

> *Cities are facing massive growth, and we are not prepared to address the influx of people and infrastructure demands. We have to act differently for different outcomes. Liveable cities must be more than aesthetics. They need to make everyone feel good by prioritizing the physical, mental, and social well-being of all residents.*
>
> **– Mazyar Mortazavi,** TAS

> *Cities need a lot of things to be liveable—affordable housing, strong transportation, arts, culture, and of course green spaces. There are so many reasons why we need green spaces—they help clean the air, moderate temperatures, mitigate storm water, and of course, they are essential for our physical and emotional health.*
>
> **– Carolyn Scotchmer,** TD Friends of the Environment Foundation, TD Bank Group

> *If we can build examples of success across cities, we will create the groundswell that will build momentum.*
>
> **– Geoff Cape,** Evergreen

Liveable Cities

1. Characteristics of Sustainable Cities

> " *The future city I want to see will be a vibrant city, a city that will offer all a wonderful quality of life—to live, work and play.*
>
> **– Geoff Cape,** Evergreen

Key Takeaway

Sustainable, liveable cities are created through a collaborative and thoughtful approach to urban design and urban living. The key characteristics of liveable cities cited by forum participants are climate-resilient infrastructure, diversity, inclusive outcomes obtained through collaboration, and accessible urban green spaces.

The discussion began by considering what makes a liveable city—the characteristics and attributes that are needed to create a sustainable, enjoyable city in which to live, work, and play. The resulting ideas can be grouped into three core themes:

a) Climate-Resilient Infrastructure

There is a need for climate-resilient infrastructure in order to enhance the liveability and sustainability of cities. Implementing green infrastructure enhances resiliency and indicates that a city is prepared to address the issues and challenges of a changing climate.

> " *A great green city of the future is resilient, healthy, and equitable. A liveable city invests in nature to solve big urban challenges, help communities adapt to climate change, and make neighbourhoods healthier places for people and wildlife.*
>
> **– Mark Tercek,** The Nature Conservancy

> " *The presence of living green infrastructure, such as urban forests, green roofs and walls, and bioswales. Green infrastructure contributes to equity, liveability, and resilience—not to mention our mental well-being.*
>
> **– Steven Peck,** Green Roofs for Healthy Cities

b) Inclusion and Collaboration

Inclusion and collaboration are seen as fundamental to creating a liveable city. This means welcoming diversity, including citizens in decision-making, and ensuring that cities are designed with people in mind.

> *A liveable city is one in which the residents are directly involved with the decision-making process. Participation and collaboration will lead to green outcomes.*
>
> **– Dave Meslin,** Toronto Public Space Committee

> *A city where people from a range of backgrounds—socio-economic, cultural, ethnic diversity, ages, professions, etc.—can all consider a place "home" and can find a high quality of life for them and their families.*
>
> **– Sevaun Palvetzian,** Civic Action

c) Urban green spaces and parks

Finally, urban green spaces and parks are seen as a crucial indicator of a sustainable, healthy, and liveable city. These green spaces must be accessible and abundant in order to enhance the quality of life for all.

> *Parks, recreation facilities, and green spaces are the single largest contributor to liveability in any urban environment. More than built form, transportation or other infrastructure, it's our social and green spaces that drive social cohesion, quality of life, and resiliency at an individual level.*
>
> **– Janie Romoff,** Toronto Parks, Forestry, and Recreation, City of Toronto

> *You can't have a liveable city without great parks! Parks define not just quality of life, but life itself, offering improved public health and social cohesion.*
>
> **– Adrian Benepe,** The Trust for Public Land

2. Challenges Facing Liveable Cities

" *Globally, the population living in cities is rising. Municipal leaders must develop solutions for providing services to millions more people in an equitable, inclusive way, while making communities healthier, more liveable places. Nature can help.*

– **Adrian Benepe,** The Trust for Public Land

Key Takeaway

In efforts to enhance the sustainability and liveability of cities, it is crucial to first understand and address the barriers preventing progress. Experts identified four key challenges that face cities today: climate change, lack of public engagement on important issues, competing priorities with limited land availability, and a slow regulatory environment that fails to turn successful initiatives into policy.

Forum participants were asked to identify the most pressing challenges facing cities today. Experts cite a wide range of issues that broadly affect the liveability of cities.

Challenges Facing Liveable Cities

1. Climate change

2. Limited public engagement

Liveable, sustainable cities

3. Limited availability of land with competing priorities

4. Slow regulatory environment with limited conversion of pilot projects to policy

Barrier #1: Climate change

Climate change poses significant risks to urban spaces and threatens to drastically transform cities. As the population of cities continues to rise, the need to respond to climate threats increases. The risks are even greater for low-lying coastal cities which are prone to flooding and will potentially be faced with rising sea levels. Harnessing the natural environment through preventative green infrastructure can help to prepare cities for climate threats.

> *Twin challenges of a) climate change and b) sustainably meeting the needs of a growing urban population.*
>
> **– Mark Tercek,** The Nature Conservancy

Barrier #2: Limited public engagement

Lack of citizen involvement in decision-making poses a significant barrier to creating sustainable cities. Public apathy due to exclusionary jargon used by policy makers or planners and limited community engagement efforts can result in a lack of representation of the public voice. Citizens often become more engaged when they believe that their contributions are valued, highlighting a need for more inclusive and engaging community feedback loops with governments and planners.

> *Planners, experts, and policy makers don't speak in a language the general public understands.*
>
> **– Mitchell J. Silver,** New York City Department of Parks

Barrier #3: Limited availability of land with competing priorities

Urban cities have limited amounts of land, making access to this resource highly competitive. Urban land development is often focused on profitability with multiple bidders vying for the same vacant spaces. Governments must often compete with private buyers to purchase land at market prices. Implementing green spaces and climate-resilient infrastructure is rarely prioritized, as cities contend with the expansion of housing developments involved in meeting the needs of growing urban populations. Future land developments are more likely to include resilient infrastructure if governments require green space designations in particular bids for land, or if developers are further educated around the profitable outcomes of inclusion of green spaces in new developments.

> *The availability of land is one of the biggest challenges to expanding our park systems, especially in high-growth areas. As developments are proceeding on smaller and smaller parcels with in-fill development, on-site parkland dedication is no longer an option.*
>
> **– Janie Romoff,** Toronto Parks, Forestry and Recreation, City of Toronto

Barrier #4: Slow regulatory environment with limited conversion of pilot projects to policy

Government regulations often favour traditional grey infrastructure over innovative green infrastructure solutions. While pilot projects offer comfortable conditions for risk-averse governments to support more innovative technologies and solutions on limited budgets, scaling these initiatives has been limited. By building pilot projects for economies of scale and disseminating learnings more effectively, pilots could result in more tangible implications for policy.

> *While testing new technology is smart, pilots often pile up and don't collectively add up to much impact after the taste-test is done.*
>
> **– Sevaun Palvetzian,** Civic Action

Green Infrastructure

1. Making the Case for Green Infrastructure

❝ *Green infrastructure is part of our design philosophy to keep people, property, and the environment safe.*

    – Mitchell J. Silver, New York City Department of Parks

❝ *Our cities need to redevelop in a manner that minimizes impervious surfaces which cause flooding and the urban heat island, and maximizes living permeable surfaces such as green roofs, walls, bioswales, wetlands, and urban forests.*

    – Steven Peck, Green Roofs for Healthy Cities

For the purposes of this discussion, green infrastructure is defined as the development and use of natural vegetative systems or green technologies that replicate ecosystem functions for environmental, economic, and social benefits. These include wetlands, ravines, meadows, green roofs and green walls, parks, and community or allotment gardens.
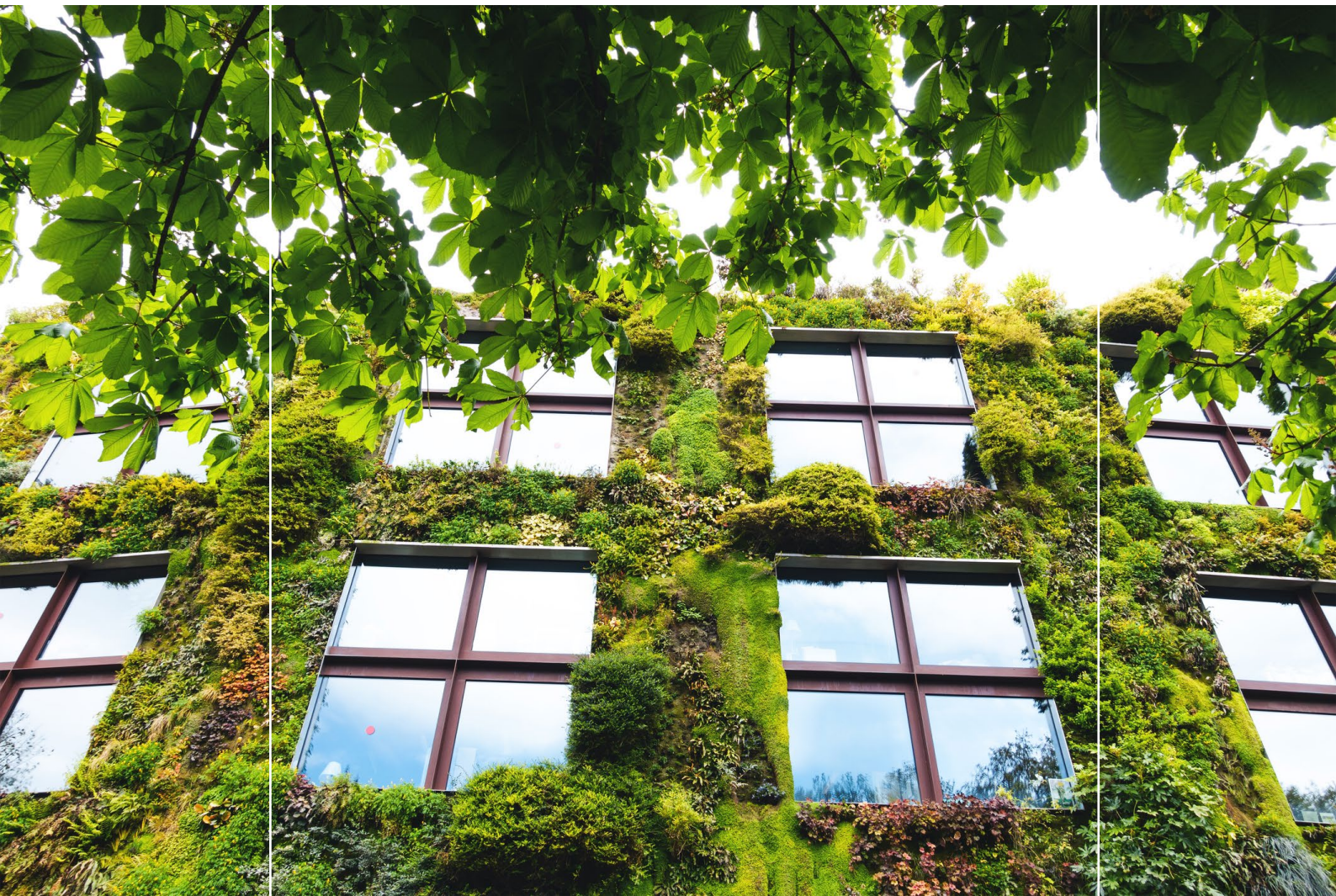
Key Takeaway

Green infrastructure offers a multitude of benefits for urban cities and communities. As cities contend with the impending threats of climate change on the environment and pollution on human health, green infrastructure remains fundamental to building and maintaining sustainable cities. By protecting cities from climate change risks, improving physical health outcomes, and encouraging social cohesion among communities, green infrastructure offers significant value for urban environments and residents.

There is broad consensus among Forum experts that green infrastructure is a vital component of building more sustainable cities and communities. Green infrastructure can provide a multitude of benefits to urban cities, particularly regarding climate change risks. As the effects of climate change become more apparent, green infrastructure investments will become increasingly necessary to improve urban resiliency and keep cities safe and liveable.

Making the Case for Green Infrastructure

Climate resiliency

Green infrastructure

Physical health

Social cohesion
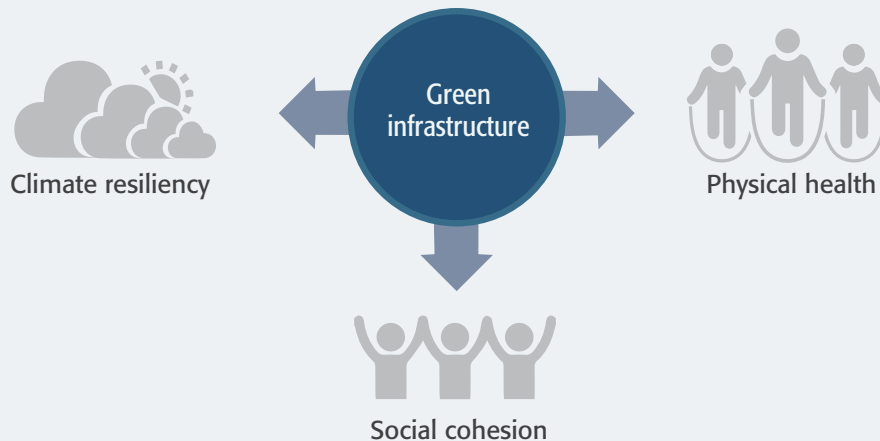
Experts were asked to reflect on the value that green infrastructure provides for urban cities. The resulting ideas can be grouped into three core ideas: protecting cities from physical climate risks, improving health implications, and driving social cohesion with nature.

Value #1: Protecting cities from climate risks

Rising temperatures and increased storms and flooding due to climate change pose significant threats to cities. Green infrastructure can protect cities from many of these climate risks, including rising temperatures, sea level rise, and storm water runoff. Natural, green infrastructure can offer much more effective defences to these threats than traditional concrete or paved alternatives, and can soften the impact of storms and heat effects. Preserved or restored wetlands can safeguard cities from storm surges, while parks can absorb water runoff. Urban parks, trees, green walls, and roofs can help to manage urban heat island effects and provide much needed flood mitigation. Cities and communities that implement green infrastructure can proactively improve their resiliency to emerging climate change threats.

> " *Green infrastructure can serve as defensive or naturally resilient for neighbourhoods—keeping them safe from short- or long-term damage from changing climates such as storm surges. With the extremes expected in rising temperatures and increased storms and flooding, green solutions like designed green infrastructure and planted surfaces will be a necessity for healthy and sustainable living in our cities.*
>
> **– Barbara Erickson,** The Trustees of Reservations

Value #2: Positive health implications

Green infrastructure has the potential to improve physical health outcomes for urban residents by improving air and water quality through increased carbon storage abilities and removal of air pollutants. Trees can play a critical role in improving urban air quality by serving to cool, filter, and clean city air and surrounding water bodies. Green infrastructure can serve to reduce urban heat island effects that are caused by concrete and asphalt roads and buildings, by sequestering carbon and reducing radiation effects. This could reduce the risk of heat-related hospitalizations for communities' most vulnerable populations, specifically the elderly and children. Green infrastructure can also serve to provide more outdoor spaces for residents, particularly schoolyards, and can encourage more active lifestyles.

> " *Natural solutions have direct health implications. For example, street trees play a crucial role in cooling and cleaning city air and have broad public health benefits as temperatures soar.*
>
> **– Mark Tercek,** The Nature Conservancy

Value #3: Social cohesion with nature

In addition to the physical benefits of green infrastructure, it can also provide social benefits for communities. Green infrastructure helps to connect people to the natural environment and can alter common perceptions that urban living means a separation from nature. It also provides new habitats for wildlife and plants in urban landscapes. Encounters with greenery, plants, and other elements of the natural environment can help to reduce anxiety and stress among urban residents in addition to other positive psychological effects. Green infrastructure also offers a significant opportunity for social cohesion among urban communities, acting as a natural gathering place, among others. Involving schools and other public institutions as venues for green infrastructure projects can trigger community engagement and help residents to feel more valued in their contributions to their community and nature.

> *There are 98,000 schools in communities across America—that represents almost 100,000 opportunities to create multiple-benefit green infrastructure and improve community health and social cohesion at the same time.*
>
> **– Adrian Benepe,** The Trust for Public Land

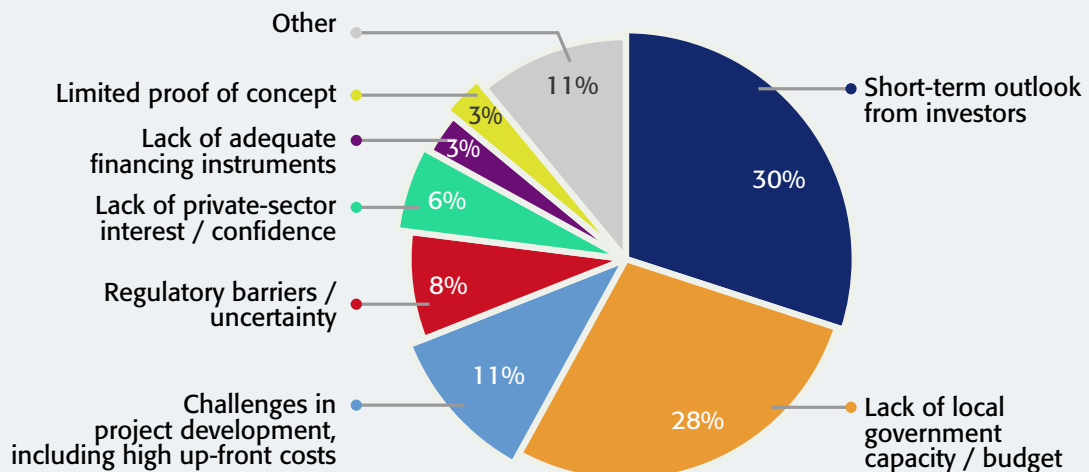# 2. Barriers Limiting Green Infrastructure Implementation

Key Takeaway

Green infrastructure has yet to significantly compete with traditional, grey infrastructure on a large scale. Experts identify the leading barriers preventing further green infrastructure project investment and implementation as: a short-term rather than long-term outlook from investors and the private sector, lack of coordinated governance including limited government capacity, and a lack of awareness and engagement from the public.

A poll question asked Forum participants which factor poses the biggest obstacle to investment in green infrastructure projects. The survey results indicate that there are a significant number of barriers at play. While there is a variety of opinions among respondents on the most significant obstacle, short-term thinking by investors and limited government capacity are cited as the most prominent obstacles limiting investment in green infrastructure.

POLL

What is the biggest obstacle limiting investment in green infrastructure projects in cities? (*n*=64)

- Other — 11%
- Limited proof of concept — 3%
- Lack of adequate financing instruments — 3%
- Lack of private-sector interest / confidence — 6%
- Regulatory barriers / uncertainty — 8%
- Challenges in project development, including high up-front costs — 11%
- Short-term outlook from investors — 30%
- Lack of local government capacity / budget — 28%

Participants were asked to reflect on the leading barriers limiting implementation of green infrastructure initiatives and to expand on their perceptions of these limitations. Experts identify the following leading barriers inhibiting progress on green infrastructure initiatives:

- Focus on short-term gains rather than long-term impacts

- Governance issues, specifically the onus placed on the public sector, rather than broader partnerships and collaborative action

- Political disengagement

- Public apathy, potentially due to lack of effective engagement

Barrier #1: Short-termism

Private sector interests tend to prioritize short-term returns over long-term value. However, experts point out that while traditional development offers quick economic returns, green infrastructure pays off over the longer term through preventative cost savings and non-economic benefits including quality of life. And yet, the return on investment (ROI) from green infrastructure initiatives is not as clear cut as traditional infrastructure investments and most sectors do not yet know how to account for these long-term payoffs. For instance, green infrastructure can result in significant cost savings by preventing property damage. However, the private sector does not often include these preventative savings in ROI calculations and instead implements traditional infrastructure investments that will pay off in the short term. There is often an inaccurate perception that green infrastructure is more expensive with higher up-front costs. Developers that purchase highly valued urban land are likely to turn these undeveloped areas into condominium buildings or shops based on shorter payback periods and guaranteed profits.

> *We need to redefine ROI. We are stuck in a place that too often evaluates return like the stock market by the quarter, where in reality we need a generational lens!*
>
> **– Mazyar Mortazavi,** TAS

Barrier #2: Governance

A recent report published by UMass-Boston Sustainable Solutions Lab defined Effective Governance in the era of climate change as, "requiring the coordinated actions of three types of actors: public agencies, private for-profit enterprises, and private non-profits. Each plays a different role, and each is necessary." Experts suggest that this type of governance is necessary in transitioning to green infrastructure. A sole reliance on the public sector significantly inhibits progress on green infrastructure. While the private sector can provide crucial financing and investment, non-profits can facilitate research and garner public support. In order to effectively implement green infrastructure on a large and replicable scale, it will require a paradigm shift away from an onus on the public sector and toward meaningful partnerships and engagement with the private sector and non-profits.

> *Governance can be an imposing barrier to the implementation of green infrastructure initiatives. And Governance goes beyond just our City or State Government. How these actors shape the need for not only updated laws and regulations, but a modernized set of societal norms can either result in collective action or a continuation of the status quo.*
>
> **– Barbara Erickson,** The Trustees of Reservations

Barrier #3: Public apathy and disengagement

A lack of public interest and support limits the potential for green infrastructure. As the majority of citizens are not actively engaged in policy development, there is a lack of awareness around the benefits of green infrastructure. Based on public apathy and limited educational efforts from government, the general public often view the preservation or development of green spaces, wetlands, green roofs, or trees as a luxury rather than necessary and protective infrastructure. The government is often beholden to private sector interests due to a lack of engagement from the public. An organized and educated community voice could serve to oppose private sector interests and pressure government to prioritize green infrastructure initiatives that will be mutually beneficial.

> *The number one barrier to any common-sense policy is our culture of political disengagement. In the absence of an organized community voice, City Halls are often disproportionately influenced by private sector interests, which are not always aligned with public interest.*
>
> **– Dave Meslin,** Toronto Public Space Committee

3. Financing Structures to Catalyze Action

> " *Urban forests and trees do much more than beautify our cities and neighbourhoods. They represent a crucial investment in the health of our cities, the well-being of the people who live within them, and our overall quality of life in the short and long term.*
>
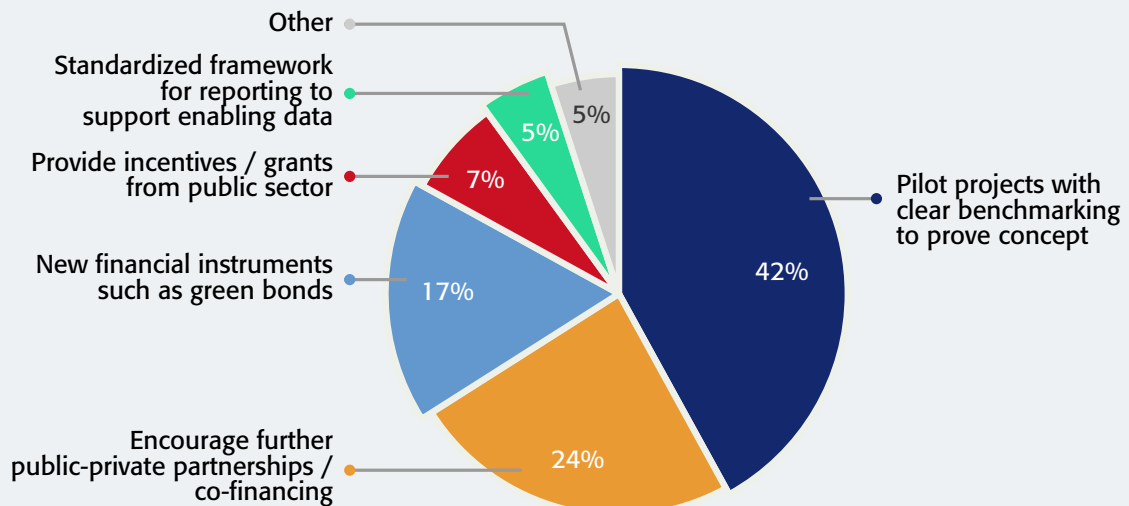> **– Nicole Vadori,** TD Bank Group

Key Takeaway

There are a variety of innovative opportunities that may be effective in fostering increased investment in green infrastructure. Pilot projects that will help to provide proof of concept as well as public-private partnerships offer significant potential to drive further investment. Financing tools such as charitable social impact investing, crowdfunding, taxation instruments, and regulatory programs and incentives can provide opportunities to drive implementation of green infrastructure initiatives.

A poll question posed to Forum participants asked what they viewed as the best method for fostering investment in green infrastructure. Pilot projects with clear benchmarking in order to prove a concept are thought to be the most effective method. Encouraging public-private partnerships and co-financing is also viewed as an effective method for fostering green infrastructure investment.

POLL

What is the best method for fostering involvement in green infrastructure initiatives in cities? (*n*=76)

- Other — 5%
- Standardized framework for reporting to support enabling data — 5%
- Provide incentives / grants from public sector — 7%
- New financial instruments such as green bonds — 17%
- Encourage further public-private partnerships / co-financing — 24%
- Pilot projects with clear benchmarking to prove concept — 42%

Financing Ideas

Experts were asked to discuss which funding or financing structures could be effective for driving green infrastructure investment in cities. A number of initiatives and ideas were suggested:

- Philanthropic contributions targeting green infrastructure initiatives offer alignment for charitable organizations, investment portfolios, and philanthropic donations through social impact investing;

- Bottom-up crowdfunding for future green infrastructure innovations spearheaded by green influencers and local communities;

- Regulatory incentives for the private sector such as tax relief incentives or green infrastructure credits that can be traded amongst developers;

- Voting instruments that allow citizens to decide if they want to implement a green infrastructure initiative that will be paid off over the long term through small taxation increases and an initial loan to the government;

- Increasing municipal revenue generation through toll roads, user fees, etc. to facilitate up-front government funding and grants;

- Funding green infrastructure initiatives based on estimated resiliency impacts, including ability to capture stormwater, excess heat, etc. Instruments such as stormwater fees which governments can collect from property owners to cover the costs of stormwater management can be used to facilitate infrastructure funding;

- Developing platforms for public-private co-investment in green infrastructure initiatives. Platforms can operate in consultation with or at arm's length from the government and seek to attract private sector and institutional investors into green infrastructure projects that will generate revenue.

Case Study: RiverSmart Initiative, Washington DC

Washington DC has developed and implemented RiverSmart, a project aimed at providing residents, businesses, and property owners with financial and technical incentives to install green infrastructure (including green roofs, rain gardens, shade trees, etc.). The goal of the project is to reduce stormwater runoff pollution, which is the result of excessive rainfall that is not absorbed and instead flows over hard surfaces into water bodies, carrying harmful pollutants into the waterways.

The project is structured through specific programs targeting different audiences (e.g., single-family residential properties, developers, schools, communities, etc.). It provides several financial benefits for installed green infrastructure. For example, residents, businesses, and property owners that manage stormwater voluntarily or above the regulatory requirements are eligible to generate Stormwater Retention Credits (SRCs). SRC generators have the option to sell SRCs through the Department of Energy and Environment at fixed prices or in an open market to properties that have regulatory requirements for managing stormwater (for example, developers who may need them in order to meet the retention requirements for large new building projects). Each SRC represents one gallon of GI retention capacity for one year. SRCs can be generated on one single property or through a SRC-aggregating business to generate SRC from multiple properties.

For more information, visit the SRC website.

Inclusive Green Spaces

1. Valuing Green Spaces

> *Urban green spaces present savings in health care, social support programs, and environmental adaptation and mitigation efforts. They build up a neighbourhood's liveability score, add value to the housing stock, and support the local economy. Land conservation organizations and municipalities need capacity to measure these impacts and derive the financial benefits.*
>
> **– Barbara Erickson,** The Trustees of Reservations

> *It's almost impossible to fully capture the value, but it's still important to try so that we can bring green infrastructure and natural capital into the conversation when talking about development and economics. For too long, these benefits have been left out of the conversation entirely.*
>
> **– Carolyn Scotchmer,** TD Friends of the Environment Foundation, TD Bank Group

Key Takeaway

Finding effective tools to measure the value and impact of green spaces is essential in driving further green development. Experts identify the most effective measurement opportunities as: creating multi-sector partnerships to facilitate studies, conducting social surveys and ecosystem valuation studies, and demonstrating correlation between access to green spaces and a myriad of relevant urban indicators.

Experts agreed that a multifaceted approach is required for measuring the impact of urban green spaces. While environmental impacts can be more easily measured, social impacts on quality of life and well-being can be much more challenging to account for. Nonetheless, it is important to account for both environmental and social factors and continue to build successful examples of green spaces in order to build momentum and drive further green development. Expert suggestions for potential measurement opportunities can be grouped into four core areas: creating multi-sector partnerships to facilitate relevant studies, conducting social surveys, utilizing ecosystem valuation studies, and demonstrating correlation between green spaces and a myriad of relevant urban indicators.

a) Partnerships

Government partnerships with universities, local health organizations, and community services can yield effective data to help determine the value of green spaces. These partnerships are necessary in order to measure the broad impacts of urban greening. Government studies are approached through a particular lens and can be limited in their ability to measure a diverse range of factors. By partnering with organizations that have better access to relevant data, more effective studies can be implemented. Experts also suggest that third-party, non-government measurement and analysis can be more influential on public perceptions. Engaging with academics, economists, and community engagement experts can help to yield more influential and diverse results.

b) Social surveys and engagement

Experts suggest a potential method for measuring the social impact of green spaces can be through direct, grassroots community engagement. By conducting social surveys through questionnaires, community consultations, and structured interviews, the social value of the presence or absence of green spaces in communities can be captured. Directly engaging with local residents and asking them how they are affected by green spaces can provide deep qualitative insights. In conducting these social surveys, it is important to ensure inclusivity and accessibility. Offering consultations in multiple formats and languages can help to make engagement efforts more inclusive and ensure results are representative of the broader community.

c) Ecosystem valuation studies

Conducting ecosystem valuation studies can be a potentially effective way to measure the value of green spaces. These studies assign a monetary value to ecosystem services, such as green spaces, by assessing and quantifying their potential beneficial impacts, including carbon sequestration, air and water filtration, physical and mental health impacts, flood protection, and potential cooling effects. By monetizing the beneficial impacts of particular ecosystem services, complete cost-benefit analyzes can be utilized in making development decisions. Ecosystem valuations can be effective in providing estimated monetary valuations to green space developments and help to catalyze further action.

d) Urban indicators

Utilizing a myriad of urban indicators in relation to the presence or absence of green spaces can help to effectively measure the social impacts of green spaces. Demonstrating strong correlations between areas with green spaces and the following indicators could be useful:

- Property and land values adjacent to green spaces

- Cost of health services

- Happiness scores

- Tourism

- Crime statistics

Measuring usage of public green spaces can also be effective in proving there is a demand for green space in urban cities.

Case Study: Parkland Strategy, City of Toronto

By 2032, Toronto's population is expected to increase by more than 500,000 people. The city average parkland per resident will drop from 28 m² (approximately the space under a mature maple tree) to 23 m², unless new parkland is created. The City of Toronto's Parkland Strategy focuses on improving access to parkland for Toronto residents. It is a 20-year plan that will guide the city in making informed and consistent decisions in its green space planning—including new parks, expansions, and improved access to existing parks across the city.

The strategy highlights three core themes in developing parkland measurement and assessment methodology: Expand, Share, and Connect. This means expanding parkland for a growing city, ensuring those lands are shared among all residents for an equitable city, and making sure parklands are accessible to all for a connected city. The strategy is two-phased, with phase one focusing on developing an informed and concise parkland measurement and assessment methodology.

This methodology will be developed through reviewing international best practices, public and stakeholder engagement, and reviewing current parkland supply and access. Phase one will be used to inform phase two, which focuses on developing an informed planning, financing, and policy framework for prioritizing future parkland development, distribution, and access.

For more information, visit the website.
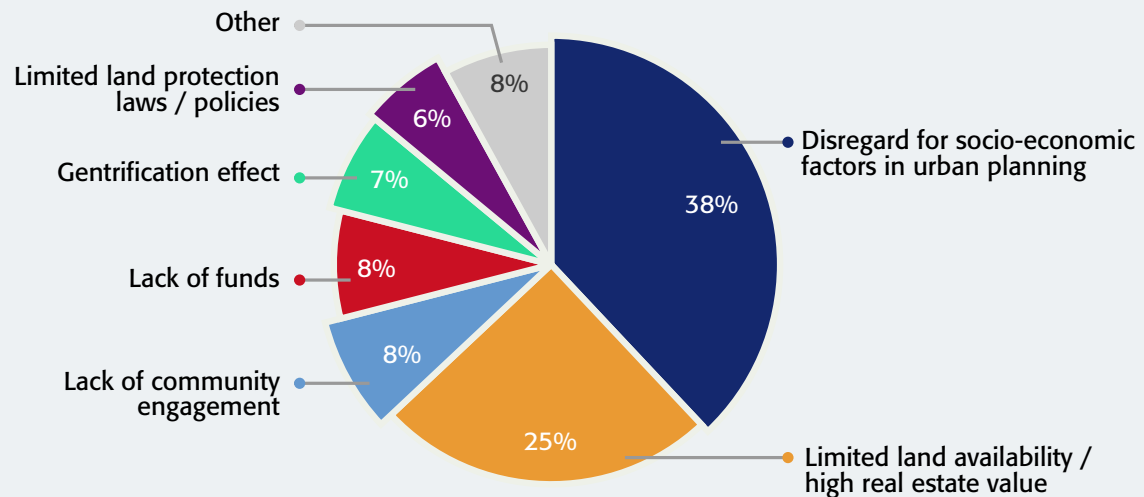
2. Overcoming Accessibility Issues

Key Takeaway

The inclusivity and accessibility of urban green spaces are limited by exclusionary design and planning processes, as well as limited land availability and high real estate values. In order to overcome these barriers, it is important to engage local communities in the planning and design of green spaces and to remove the physical barriers limiting access to these spaces.

A poll question asked Forum participants to identify the most significant barriers limiting the safety, accessibility, and inclusivity of urban green spaces. Participants identified a disregard for socio-economic factors in urban planning to be a leading barrier, as well as limited land availability and high real estate expense.

POLL

What are the greatest barriers to making urban green spaces safe, accessible, and inclusive (*n*=52)

Other — 8%

Limited land protection laws / policies — 6%

Gentrification effect — 7%

Lack of funds — 8%

Lack of community engagement — 8%

Disregard for socio-economic factors in urban planning — 38%

Limited land availability / high real estate value — 25%

Experts were asked to discuss how to overcome these accessibility issues in order to offer safe, inclusive, and accessible green spaces for all. The resulting ideas can be grouped into two core themes: engaging local communities in the design and planning of green spaces and removing physical access barriers to green spaces.

Engaging local communities in design and planning stages

In order to ensure accessibility and inclusivity of green spaces, the planning and design process must be inclusive. This means engaging with local communities and listening to their concerns and priorities during the design and planning of urban green spaces. It is fundamentally important to involve underserved neighbourhoods and marginalized residents in this planning process in order to ensure that these spaces are designed with the most vulnerable in mind. By allowing local communities to play a role in shaping the design and planning of these green spaces, barriers will be better understood and residents will feel more empowered to utilize these spaces. Through engagement efforts, planners can also learn from residents and better understand the varying cultural perceptions and uses of green spaces. For example, as pointed out by expert panelist Janie Romoff, green spaces can be used "as a space for land-based reconciliation with Indigenous groups by incorporating their vision into modern park design."

> *When community residents and partners have an opportunity to express their needs and shape the process, they are more invested in the outcomes.*
>
> **– Barbara Erickson,** The Trustees of Reservations

SUSTAINABLE DEVELOPMENT GOALS

Removing physical access barriers

Experts suggest removing physical access barriers to urban green spaces can help residents feel more comfortable utilizing these spaces. By improving entrances, perimeters, and ease of entry, green spaces can feel more welcoming and accessible to local communities. This can include lowering or removing fences or gates and widening sidewalks or replacing stairs with ramps to accommodate strollers and wheelchairs. Providing informative signage in different languages and including culturally diverse art and amenities can help to make all residents feel welcome, regardless of their culture or ethnicity. Ensuring green spaces are in convenient locations with easy access to public transit can also improve accessibility. Experts also suggest that creating green spaces in abandoned or underutilized places can help to remove physical access barriers. Rooftops, abandoned railway lines, utility corridors, and the underside of elevated highways can all be innovative possibilities for green spaces and can help to improve accessibility issues.

> *Making use of outmoded or single-use infrastructure represents the new frontier for park development in many cities where land to make parks is either unavailable or too expensive.*
>
> **– Adrian Benepe,** The Trust for Public Land

Addressing the Potential Gentrification Effect of Green Spaces

Greenspace investment can result in a transformation of the socio-economic character of a neighbourhood by driving up property values and forcing low- to moderate-income residents to relocate. While these investments are often intended to serve existing lower-income residents, the increased land values caused by this investment can result in increased rents and displacement.
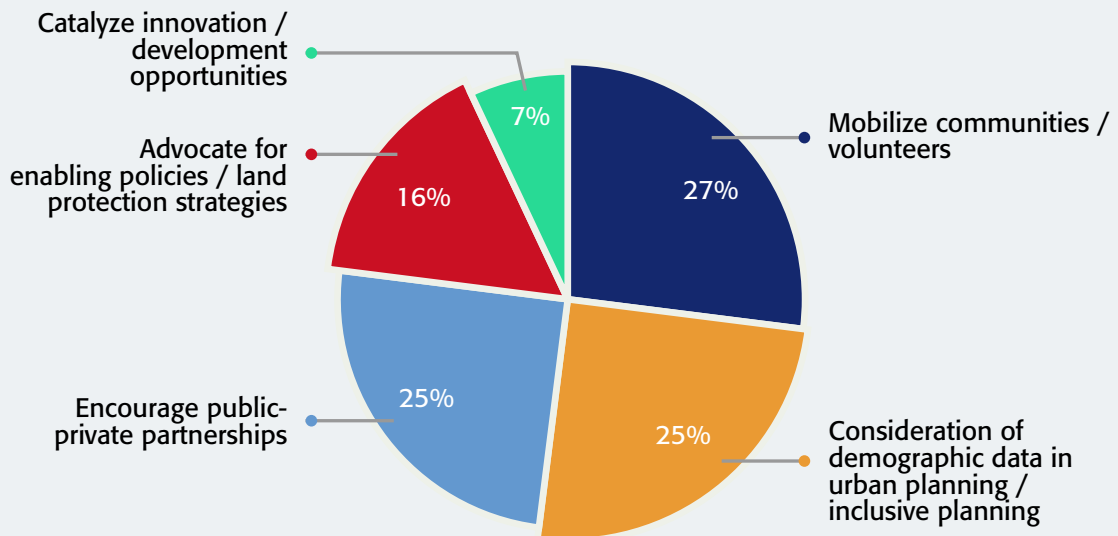
In order to prevent the gentrification effect of green space investments, experts suggest:

1. Coupling green space development projects with affordable housing development;

2. Partnering with community-based organizations that understand the makeup of low-income communities;

3. Ensuring equal green space investment across all communities in a municipality.

A poll question posed to Forum participants asked what they viewed to be the best method for improving development and accessibility of urban green spaces. Mobilizing communities and volunteers, considering demographic data and inclusion in planning, and encouraging further public-private partnerships are identified as the most effective methods.

POLL

What is the best method for improving development and accessibility or urban green spaces? (*n*=44)

Catalyze innovation / development opportunities — 7%

Advocate for enabling policies / land protection strategies — 16%

Encourage public-private partnerships — 25%

Mobilize communities / volunteers — 27%

Consideration of demographic data in urban planning / inclusive planning — 25%

Case Study: Department of Parks and Recreation Initiatives, New York City

Through the Department of Parks and Recreation, New York City has identified green infrastructure and high-quality parks as a strategic opportunity to improve the city's resiliency and increase resident well-being. Supported by a growing body of evidence that demonstrates the positive impact of green space on the health and well-being of individuals and communities, New York's Department of Parks and Recreation has developed a number of projects aimed at improving quality and accessibility of local parks.

The Community Parks Initiative aims to invest in under-resourced neighbourhood parks across the city. The city engages and collaborates with local communities to design and re-create local parks in dense and growing neighbourhoods that have not received significant capital investment in the past.

Parks Without Borders aims to reimagine park accessibility and usage by redesigning how parks meet streets and sidewalks. The project seeks to make entrances more welcoming by removing fences or gates, and creating park-adjacent spaces that can be used as centres for community activity.

Partnerships for Parks is a unique public-private partnership between City Parks Foundation and NYC Parks that supports neighbourhood volunteers by providing them with the skills and tools needed to take care of their neighbourhood parks and green spaces and utilize these spaces as community assets.

Partnerships and Collaboration

1. Role of organizations

> *When we approach parkland planning, we always think of our green spaces from a network approach. City parkland is only one piece of the green space puzzle—private lands, universities, schools, and other large green spaces contribute to our cities and are important green infrastructure. Finding ways to better collaborate and connect these systems is key.*
>
> **– Janie Romoff,** Forestry and Recreation, City of Toronto

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Key Takeaway

In order to drive progress on green infrastructure, engagement from a host of organizations beyond government will be required. Experts cite non-profits, academic institutions, and private corporations and investors as important actors in contributing to green infrastructure initiatives through facilitating meaningful partnerships and playing to specific organizational strengths.

Forum participants were asked to reflect on how organizations beyond government can contribute to planning and implementing green infrastructure in cities. Experts primarily refer to three types of organizations in their responses: non-profits, academic institutions, and private corporations or investors.

a) Non-profit organizations/NGOs:

NGOs would do well by:

- Engaging local communities and advocating for their interests, including green space access, while encouraging residents to get involved in relevant initiatives;

- Facilitating trials of new green infrastructure innovations and sharing findings with municipal officials or landowners who can utilize the evidence to attract green investment;

- Educating and encouraging public and private sector to implement green infrastructure initiatives by forming long-term partnerships;

- Acting as stewards for local green infrastructure and green spaces.

b) Academic institutions: schools, universities, colleges

Academia could contribute by:

- Conducting relevant research and data collection to assist in building the business case for green infrastructure and to inform strategic design and planning;

- Converting to green infrastructure on school grounds to demonstrate proof of concept and provide students with accessible green spaces;

- Partnering with public and private sector to facilitate philanthropic investments or public funding for internal green infrastructure initiatives.

c) Private corporations/investors:

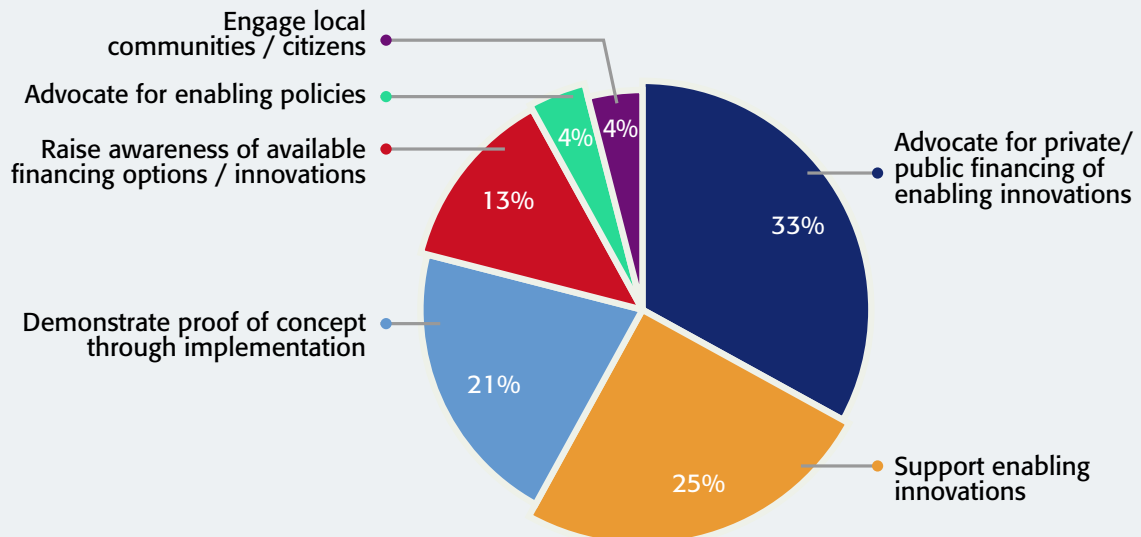The private sector could provide support by:

- Providing necessary funding or financing as part of corporate mission or philanthropy initiatives;

- Modelling environmental, economic, and socially responsible investments in green infrastructure and providing proof of concept for enabling financing mechanisms;

- Facilitating employee volunteer initiatives to provide assistance with maintenance of green spaces, including park cleanups, tree planting, etc.

Forum participants were asked to identify which initiatives private sector actors should prioritize in order to support green infrastructure development. Advocacy and support for enabling financing and implementing innovations are identified as the most effective potential actions.

POLL

What kind of initiatives would be most important for a private sector actor to prioritize in order to drive action on green infrastructure and green spaces? (*n*=24)

- Engage local communities / citizens — 4%
- Advocate for enabling policies — 4%
- Raise awareness of available financing options / innovations — 13%
- Demonstrate proof of concept through implementation — 21%
- Advocate for private/public financing of enabling innovations — 33%
- Support enabling innovations — 25%

2. Engaging citizens

> *We must create space for communities to lead these initiatives. Their vision inspires the solutions that address actual, lived concerns.*
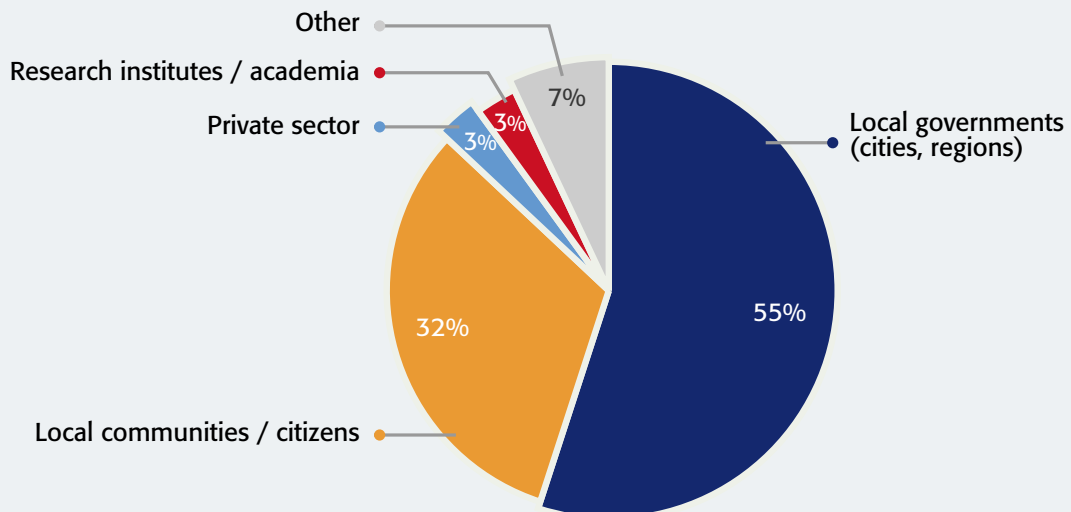>
> **– Mark Tercek,** The Nature Conservancy

Key Takeaway

Community engagement and civic-led initiatives are central to creating sustainable cities and implementing green infrastructure. Cities with strong, collective community voices will be more adaptable and resilient to climate change threats. Encouraging more active community involvement will require sincere, innovative, and inclusive engagement efforts and community support.

A poll question asked Forum participants to identify which actor is most important in creating safe, inclusive, and accessible urban green spaces. While local governments are identified as the most crucial actor, local communities and citizens are also identified as critical actors in creating inclusive and accessible urban green spaces.

POLL

Which of the following actors is most crucial in encouraging the implementation of green infrastructure in cities? (*n*=58)

Other — 7%
Research institutes / academia — 3%
Private sector — 3%
Local governments (cities, regions) — 55%
Local communities / citizens — 32%

Experts were asked to reflect on the role that civic-led initiatives can play in driving progress on green infrastructure and how to encourage more active involvement from local residents in the planning and realization of inclusive and sustainable cities.

A number of initiatives and ideas were suggested to help drive more citizen involvement:

- Ensure all community members can make it to public meetings by holding meetings at the most convenient times and locations, and providing support or funding to low-income residents for transportation or child-care costs;

- Ensure residents at public meetings reflect the demographics of the wider community;

- Do not have an agenda, listen to community ideas and be sincere about embracing non-traditional ideas and methods;

- Align green infrastructure projects with community interests and economic stakes, such as local employment opportunities;

- Engage community members often and in early project stages to create organic alignment with the expectations of residents and community buy-in;

- Include the next generation in engagement efforts by involving children and teens in public meetings or encouraging schools to provide students with opportunities to help design green spaces;

- Provide funding to local community groups and residents to provide them with the skills and tools needed to care for their green spaces and encourage community involvement in maintenance efforts and feelings of ownership.

List of Expert Guest Contributors

Thank you to the 12 expert guest contributors who joined us for the Forum and contributed their invaluable ideas:

- Adrian Benepe, Senior VP and Director of National Programs, The Trust for Public Land
- Barbara Erickson, President and CEO, The Trustees of Reservations
- Carolyn Scotchmer, Executive Director, TD Friends of the Environment Foundation, TD Bank Group
- Dave Meslin, Founder, Toronto Public Space Committee
- Geoff Cape, Founder and CEO, Evergreen
- Janie Romoff, General Manager, Toronto Parks, Forestry and Recreation, City of Toronto
- Mark Tercek, CEO, The Nature Conservancy
- Mazyar Mortazavi, President and CEO, TAS
- Commissioner Mitchell J. Silver, Parks Commissioner, New York City Department of Parks
- Nicole Vadori, AVP and Head of Environment, TD Bank Group
- Sevaun Palvetzian, CEO, Civic Action
- Steven Peck, Founder and President, Green Roofs for Healthy Cities

Additional Case Studies and Resources

- The Nature Conservancy developed a study to understand the effects of trees on air quality and quantify the health benefits of urban trees in 245 cities globally.

- TD Economics used the City of Toronto's urban forest to show how an investment in urban forests has positive effects on the overall economic and environmental well-being of urban society.

- TD Bank Group worked with Evergreen to establish the TD Future Cities Centre in Toronto which supports research, dialogue, and innovation in city-building: "TD Future Cities Centre is where urban thought leaders and city builders can gather, co-create, test, and prototype solutions for building inclusive low-carbon cities of the future." More information can be found at this link.

- The Trustees of Reservations developed the OneWaterfront Initiative to understand the role that parks play in providing green infrastructure solutions.

- TD Friends of the Environment Foundation promotes a wide range of environmental initiatives that focus on revitalizing, animating, and stewarding public green spaces.

- The Trust Parking Land published a report that recognizes the many benefits of using parks as green infrastructure.

- In 2017, The Nature Conservancy launched the Green Heart Project to examine the link between neighbourhood greenery and certain physical and mental illnesses.

- The International Olympic Committee (IOC) developed a legacy that includes its contribution to the UN Sustainable Development Goals (SDGs).

- In 2018, the Trustees of Reservations conducted a study to understand Boston residents' need for green infrastructure and its benefits. The study revealed strong support for strengthening shorelines and green infrastructure (e.g., building more parks and natural landscapes). It also found that access to open spaces has many benefits in terms of health, social, and economic well-being of residents and businesses.

- The Community Volunteering Charity (TVC)—located in the UK—started an initiative called Green Gyms to engage the local communities in a range of health-promoting activities using green spaces (for example walking, running, cycling, farming, gardening, etc.).

- CivicAction launched a voluntary "Race to Reduce" competition to challenge the GTA's building owners and tenants to collectively reduce energy use in their buildings by at least 10 percent from 2011–2015. The 10 percent target was surpassed. Participants collectively reduced their energy use by over 12 percent in four years—the equivalent of taking 4,200 cars off the road—and the initiative became one of the largest regional energy challenges in the world, with almost 200 buildings participating, representing more than 42 percent of the commercial office space in the GTA.

- Resilient Boston Harbor plan is an "example of a civic-led initiative to create sustainable green spaces" (Barbara Erickson) that involved several stakeholders. More information can be found at this link.

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