The City Research and Innovation Bridge

Supporting cities to implement sustainable solutions for a flourishing future

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MISSION INNOVATION | NET-ZERO COMPATIBLE INNOVATIONS INITIATIVE

GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY

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Background

As a whole, the world's cities are home to both significant sources of greenhouse gas (GHG) emissions and the greatest opportunity to mitigate them and adapt to the impacts of climate change. The scale of both challenge and opportunity is increasing: the United Nations Population Division estimates that urban areas are projected to house 60% of people globally, and that one in every three people will live in a city with at least 500,000 residents[1]. If humanity is to achieve the goals of the Paris Agreement and avert the climate crisis – while meeting its core needs - solutions must come through cities.

Cities – and the local governments who represent them – continue to gain momentum in taking action. More than 12,000 of them have committed to the Global Covenant of Mayors for Climate & Energy (GCoM), the world's largest alliance dedicated to city climate leadership; of these, around 6,000 have crafted a climate action plan and others are taking action to boost their adaptive capacity[2]. Cities of all shapes, sizes, and contexts have a crucial role to play in the race to net-zero and resilience.

Significant gaps persist, however - around local capacity for action, paucity in the cross-sector partnerships required to finance and scale impactful projects, and a continued lack of data and evidence to support sound policymaking[3]. Research and innovation (R&I) that targets these gaps at city-level is underway, but there remains a need to link cutting-edge thinking, implementation, and communication with the city climate action journey (Fig. 1): the people-led process that allows local governments to meet the needs of their residents in a sustainable manner.

Figure 1. The GCoM City Journey

[1] United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition.

[2] Global Covenant of Mayors for Climate and Energy (2021). Further and Faster Together: The 2021 Global Covenant of Mayors Impact Report

[3] Global Covenant of Mayors for Climate and Energy (2022). City Research and Innovation Agenda, update. Oke, C., Walsh, B., Jance, B., Hadfield, P., Palermo, V., Salehi, P., Assalini, S., Badino, M., Barth, B., Bertoldi, P., Deacon, A., Del Rio,I., Huxley, R., Mansutti, E., McGregor, M., Moura, E., Sari, A,. Sasmaz, D., Schultz, S., Soares, R., Strachan, K., Tacconi, M., and Zhu, S. (Eds). Online resource, Global Covenant of Mayors for Climate and Energy https://doi.org/10.26188/627d433eb0d54

GCoM's City Research and Innovation Agenda and the updated Global Research and Action Agenda

Built on a cross-sector evidence base, the City Research and Innovation Agenda identifies the global and regional priorities that can enable local governments to rapidly and holistically transform ambition into implementation. It seeks to fill local-level knowledge, information, and technology gaps at every stage of the city climate action journey.

Sourced directly from local policymakers, city leaders, and practitioners, it highlights today's critical urban climate needs and charts pathways to increase ambition and drive action implementation. The agenda is organised around city decision-making process, and built on four priority questions that cities and their partners ask as they develop and implement their climate action plans:

1. How do we build the evidence base for climate action?
2. How – and for whom – should we prioritize?
3. What should we do?
4. How do we finance and scale climate action?

The *Findings from Innovate4Cities 2021 and Update to the Global Research and Action Agenda* details the research, policy, public discussions, recommendations and research gaps as the Global Research and Action Agenda for Cities and Climate Change Science (GRAA), drawing on hundreds of presentations and discussions at the Innovate4Cities 2021 Conference under key topical and cross-cutting themes.

The document helps frame the need to catalyse action and implementation, focuses on new and emerging research gaps for the topical areas and cross-cutting issues identified in the GRAA, and hones in on regional insights to highlight variation in research and implementation gaps across different contexts.

The Need-Based Climate Innovation Framework (NCF)

An initiative under the United Nations Framework Convention on Climate Change (UNFCCC) Global Innovation Hub and implemented in collaboration with Mission Innovation, the Need-Based Climate Innovation Framework (NCF) reframes the classic emissions reduction approach to climate action by approaching stakeholders across all sectors of society as solution providers and demand owners, with near-limitless potential to connect both and deploy high-impact sustainability solutions.

The Framework forms part of an expanded innovation agenda that employs a 'dynamic approach' where solutions are formed in partnership with both providers and demand owners, centered around

tackling human needs within a city context – including 'basic' ones like shelter, nutrition, and health, 'higher' ones like personal and social development, and 'enabling solutions' such as mobility, energy, and information. This approach responds to a status quo approach that struggles to delivery global sustainable solutions and can exclude transformative system solutions. Per the OECD:

> *Most climate action today focuses on optimizing parts in systems that are unsustainable-by-design. For example, many efforts (and investments) go into replacing combustion with electric vehicles. These efforts, while necessary, can be inefficient if embedded in car-dependent systems.*[4]

In contrast with the predominant 'static approach' of addressing emissions reduction as a standalone activity – unintegrated with broader city policy journeys – the NCF challenges actors to pursue solutions that can help people today, and a future where 11 billion people inhabit our planet, live flourishing lives. The combined result is an expanded climate innovation agenda focused on how cities can provide flourishing lives for both its own citizens, and the rest of the global population through export and dissemination of sustainable solutions.

The initiative is based on innovative policies, financial instruments, cooperative approaches, business models, changing values and leadership, and guided by the need for deep and fast emission reductions in line with IPCC's 1.5 °C Low-Energy Demand Pathway[5]. Such a dynamic and integrated solution approach focuses on how to meet human needs in a way that delivers an equitable future society for more than 11 billion people through fossil fuel-free solutions.

Identifying the gap

The City Research and Innovation Agenda, the updated Global Research and Action Agenda, and the Need-Based Climate Innovation Framework serve unique yet interconnected purposes for driving urban sustainable action. Linking them – and united by the city journey - would allow cities and local governments, national governments, business, civil society, and academia to take action across all policy domains – fulfilling core human needs through solutions that are sustainable, equitable, and feasible.

[4] https://www.oecd.org/innovation/inno/greengrowthandeco-innovation.htm

[5] https://unfccc.int/news/un-climate-change-boosts-innovation-for-climate-action

The City Research and Innovation Bridge

The *City Research and Innovation Bridge* connects these agendas and the city journey, linking core human needs to the priority R&I gaps that local practitioners face – and uncovering the policy levers that can enable action. For the first time, the *Bridge* demonstrates the simultaneous pursuit of core human needs, ambitious climate action, and R&I priorities at city level.

The *City Research and Innovation Bridge* serves as a resource for sustainability solution providers and demand owners alike – including cities and local governments, national governments, business leaders, academics, and civic groups - who can help fill the gaps using their unique capacities and abilities.

Figure 2 demonstrates the inherent linkages between the agendas and the city journey. Grouped into three overarching action areas – *urban planning and design*, *infrastructure*, and *governance* – the core human needs are listed as the starting points for action. These are overlaid on existing sectors of activity that are familiar to cities and local governments today – including the built environment, energy, waste, and public procurement, among others – highlighting the versatility of the Need-Based Framework.

These core human needs are then connected to the priority gaps, thematic areas, and cross-cutting topics of the *City Research and Innovation Agenda* and the *Global Research and Action Agenda.* Built on a multi-year, multi-stakeholder evidence base, these priorities form the bedrock of need for city climate action today – encompassing the entire city journey and policy process. These linkages are not meant to be exhaustive, but rather indicative of where potential for action and implementation is greatest at city-level.

This crucial linkage between core human needs and the priority gaps highlights the opportunity and scale of solutions provision that can take place at city-level – and invites cross-sector partners to prepare their needs for investment and/or implement sustainable, people-centered solutions.

Figure 2. Flow diagram for the City Research and Innovation Agenda Bridge
To see the *Bridge* in action and see the full list of city research and innovation priorities, visit globalcovenantofmayors.org.

Building on the *City Research and Innovation Agenda*'s action-driven approach, the *Bridge* also connects core human needs with the policy processes and levers considered highly effective – via the implementation of solutions that fill priority gaps at city-level.

Figure 3 highlights these relationships in greater depth. Based on these linkages, the 'Bridge' can recommend the policy processes that can provide the greatest support in pursuit of specific priorities and gaps in the CRIA, GRAA, and – for the first time - the needs-based approach. Data and research supporting shelter/living, advocacy and communication supporting mobility, and pilots and replication helping advance data/digitalization: these are key opportunities for solution providers and demand owners alike to maximize synergies and meet the needs of their respective communities.

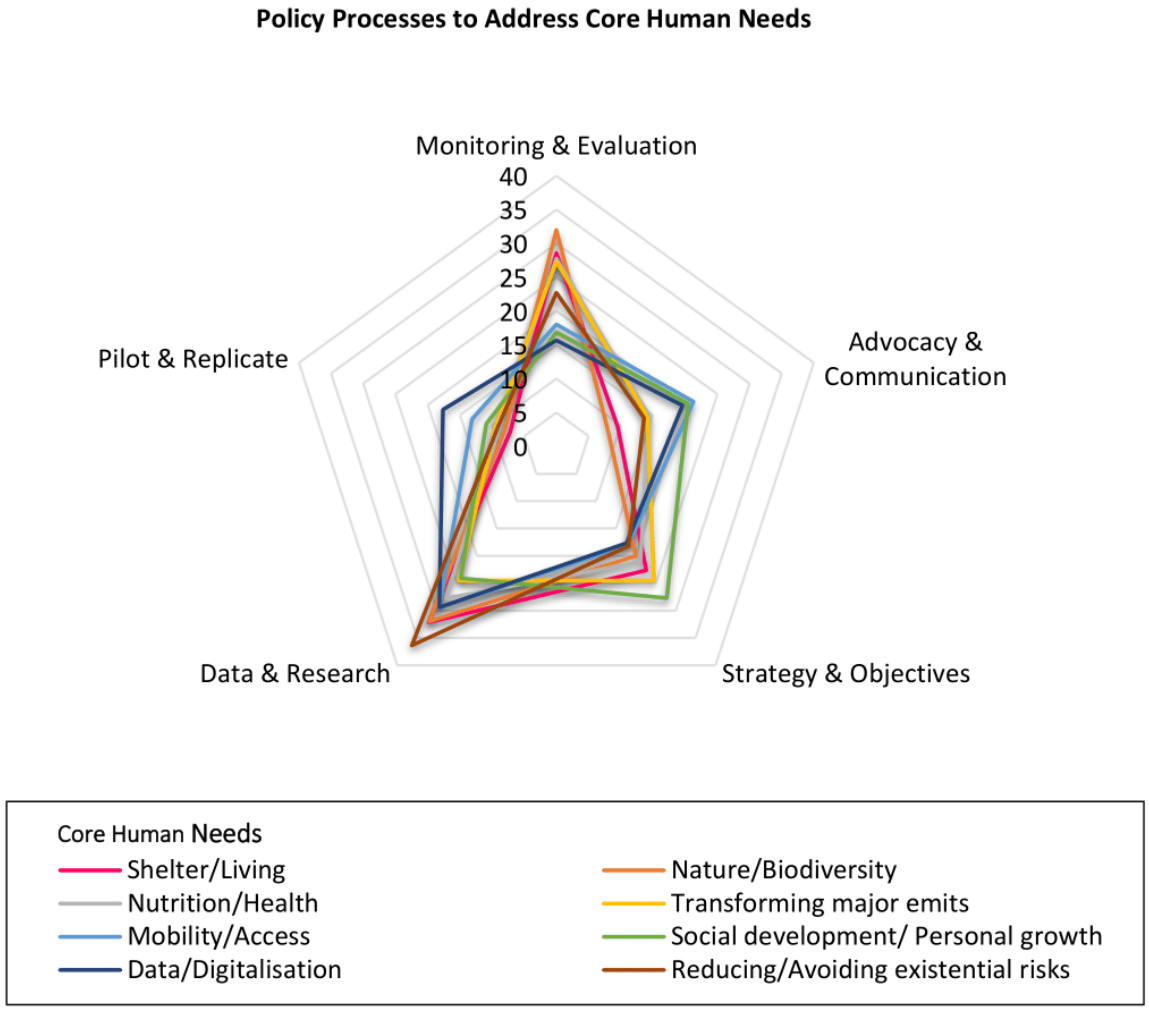

Figure 3. Policy processes linked with Core Human Needs – via city R&I priority gaps

While no single process can single-handedly achieve all stated policy objectives, the 'Bridge' provides insight into strategic approaches that can help ensure the success of innovative city-level solutions. At its core, the 'Bridge' links these concepts to then help connect solutions providers with demand owners and meets them where they are within the unique context of cities to accelerate local climate and sustainability action – with a distinct focus on human needs rather than 'only' emissions sources.

Applying the City Research and Innovation Bridge in practice

Establishing linkages between the CRIA, GRAA, and NCF presents ample opportunities to unlock greater local level momentum for climate and sustainability action. The 'Bridge' highlights that pursuing the priority gaps in the CRIA – or any of the themes and topics in the GRAA – move them at least one step closer towards fulfilling core human needs within their own communities, and vice versa.

Specifically, the 'Bridge' allows for:

- **Cities and local governments to assess and prioritize actions according to greatest need** across their constituent communities, noting the policy levers that may help yield significant impact;

- **Solutions providers across sectors – including business and philanthropy – to identify and target critical gaps** in urban climate and sustainability research and innovation;

- **Demand owners across sectors to clearly articulate challenges – and more quickly match with solutions providers** with fit-for-purpose resources to meet local needs; and

- **The development and dissemination of further in-depth research – especially at regional and country level – around the priority gaps** that cities face in the provision of sustainable, equitable, and feasible solutions.

With rapidly-changing priorities and needs at urban level, the *City Research and Innovation Bridge* is an evolving document and will be updated as deemed relevant through GCoM, the UNFCCC Global Innovation Hub, the Mission Innovation Net-Zero Compatible Innovations Initiative, and other partners.

Learn more

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