



United Nations Climate Change Global Innovation Hub

Sixth Systemic Innovation Workshop

Workshop Report

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Venue: United Nations Campus, Bonn, Germany



United Nations Climate Change
Global Innovation Hub

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1 Executive Summary

The UN Climate Change Global Innovation Hub (UGIH) successfully conducted its Sixth Systemic Innovation Workshop at the UN Campus in Bonn, Germany, on June 11th and 12th, 2024. The objectives of the workshop were fivefold:

- To provide cities and counties (both urban and rural) a physical space in the form of a workshop, where they can, with their solution providers, backcast and translate into directional goals, then challenges their long-term vision on how their citizens will satisfy their core human needs while aligning with climate and sustainability goals. These long-term visions of cities and counties are referred to as the Future Outlook of Cities and Counties.
- To discuss possible challenges that the solution provider participating in the workshop may face in reinventing their organization based on their current assets and their current and/or to be built distinctive competence, skills, and expertise, with a view to being relevant to the Future Outlook of Cities and Counties.
- To explore whether, for some of these challenges for cities and counties and their solution providers, a cluster of climate and sustainability solutions is available for upscaled deployment.
- To identify the priority missing solutions that need to be developed or the existing solutions for which we need to accelerate and upscale the deployment and formulate the related critical Innovation Projects.
- To develop a work program for the implementation of “The City Challenge-UGIH Initiative”

UGIH’s Systemic Innovation Workshops were launched in 2023 as part of a wider Systemic Innovation Framework that aims to accelerate the identification, development, and effective deployment of innovative technologies, policies, financial instruments, and business models, as well as cooperative approaches and products from culture and creative industries. This framework supports transformative climate and sustainability innovations to address the needs of the many people and the planet. Since its launch, UGIH has successfully organized six workshops in the following cities that have resulted in the ideation of eleven global innovation projects¹:

- Bonn, Germany (June 2023 and June 2024)
- New York, USA (September 2023)
- Riyadh, Saudi Arabia (October 2023)
- Dubai, UAE (December 2023)
- Bangalore, India (May 2024)

UGIH’s Sixth Systemic Innovation Workshop featured plenaries as well as six breakout sessions (five physical and one virtual session). The opening remarks were delivered by Massamba Thioye, Project Executive of UGIH who gave a comprehensive introduction to UGIH, elucidating its vision, mission, core values, and operational framework. Additionally, Massamba and David M. Babson from the XPRIZE Foundation introduced the City Challenge, a \$1 billion prize to inspire cities to showcase impactful climate and sustainability actions through media content.

Seven city representatives further presented their challenges and future visions, to which solution providers responded with their insights, recommendations, and ideas. The workshop also showcased two

¹ Urban Mobility, Fashion, Resilient Earth Settlement for Tomorrow (Shelter), Personalised Natural Living (Health), Waste2Wealth Catalytix, Framework For Measuring Alignment Of Businesses To Human Needs, Sustainable Innovative actions/practices for solving Water Crisis induced by Climate Change in Bengaluru City, Handprint campaign, City Solution Playground, Waste to Value (coconut project).

global innovation projects on Fashion and Urban Mobility that were ideated from previous workshops and are currently under implementation. These presentations provided a foundation for the breakout groups to contemplate the challenges and formulate Innovation Projects for the satisfaction of core human needs while being aligned with climate and sustainability goals. The workshop also featured a presentation on the progress of UGIH's digital platform supported by GESI, showcasing the vision for the platform by UNIPARTNERS and T-Systems.

The workshop saw a diverse mix of 89 participants spread over two days, with 74% attending in person and the remaining attending virtually. The participants included cities, UN organizations, incubators and accelerators tech companies, foundations, VC firms, research centers, publishers, start-ups, and companies from the culture and creative industries. The figure one below shows the organization types of the participants.

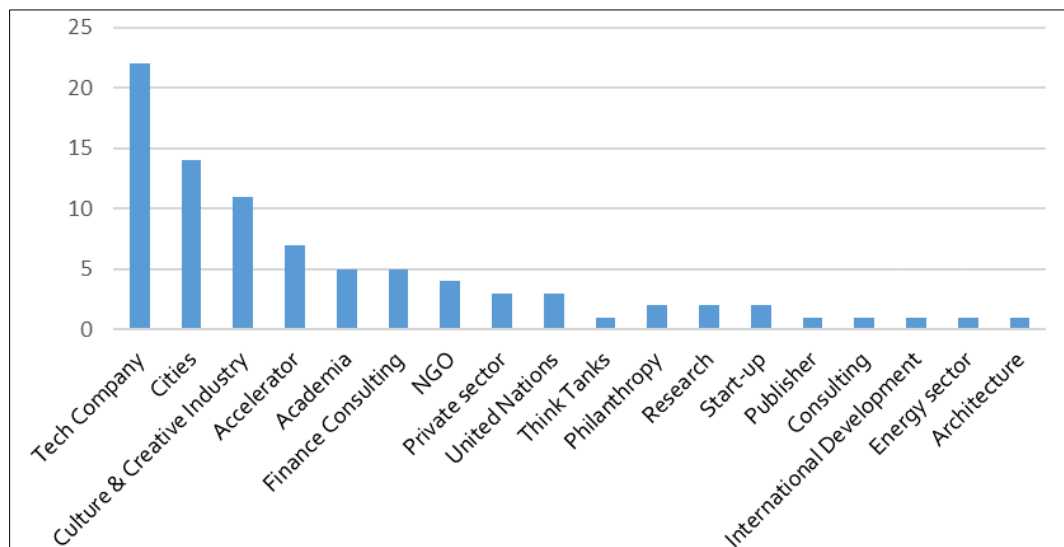


Figure 1: Classification of Participants

2 Cities' and Counties' Presentations - Understanding Needs

Bonn, Germany

Bonn aims to be climate neutral by 2035 and has adopted the Bonn Climate Plan 2035 in March 2023 which targets to influence 42% of the city's GHG emissions. The plan covers seven action fields: Governance, Society, Economy, Buildings, Energy, Mobility, and Compensation. Future city outlook focuses on regional and seasonal food, energy-efficient housing, climate-neutral mobility, renewable energy, and citizen spaces. Challenges highlighted include land use conflicts with new mobility forms, rising energy demands, and citizen disinterest in the climate plan.

Expo City Dubai, United Arab Emirates

Expo City Dubai is a city within a city aiming to be net zero by 2050. It integrates a business ecosystem of government, academia, MNCs, startups, and more, fostering radical collaboration. The city features a decarbonization roadmap, pedestrian-friendly design, and sustainable infrastructure. As its own authority, Expo City can influence policies and regulations. The urban lab initiative uses the city as a test bed for innovation. Current challenges faced include the lack of procurement systems for innovation and attracting investments. Exploring challenge-led procurements and city cohorts procuring for the same solutions can attract investments at scale.

Harare, Zimbabwe

Harare aims to achieve a world-class city status and the city's development vision prioritizes water, sanitation, food security, housing, healthcare, education, safety, community engagement, economic opportunities, environmental sustainability, and participatory governance. The challenges include inadequate funding for projects, stakeholder resistance to change necessitating better communication, insufficient infrastructure supporting new initiatives requiring concurrent investments, and a tendency towards short-term gains over long-term sustainability.

München District, Germany

The district aims to be climate-neutral by 2045. The 29++ initiative of the district involves 29 communities reducing CO2 emissions and has reduced emissions from 13 to 6.9 tonnes since 2016. The communities are also developing adaptation strategies. The lighthouse projects in the district include installing wind turbines, the ELENA project where communities develop detailed climate protection plans, and Aktion Zukunft project which uses crowdfunding to support climate measures. Limited regulatory power is a major challenge for the district, positioned between the state and the communities.

Karlsruhe District, Germany

The action plan of Karlsruhe was approved in 2016, focusing on renewable energy, resource conservation, sustainable mobility, sensitization, waste prevention, recycling, flood protection, and water management. Projects like bike-sharing systems, a solar atlas, expanding PV systems on public buildings, and installing LED street lights, waste collection nets, and so on were undertaken to implement the action plan. The district also has an international partnership with Brusque, Santa Catarina, Brazil, to exchange experiences and collaborate with experts.

Gissen District, Germany

The district faces climate change challenges like heavy rain, floods, rising temperatures, and declining groundwater levels. Ensuring a secure heat supply without fossil fuels is a significant hurdle. The vision of the district is to set up comparable living conditions. District initiatives encompass environmental, social, and economic aspects, including reducing energy demand and establishing social hubs commercial areas, etc. Policy instruments like the Master Plan 100% Climate Protection and Sustainability Strategy (2024) guide implementation. Conflicting urban-rural interests, limited funds, and insufficient sustainable mobility infrastructure pose major challenges.

Vorpommern Greifswald County, Germany

The Greenfuels Parana project, supported by Mecklenburg-Vorpommern and multiple agencies, focuses on the production of hydrogen derivatives. Known for its substantial livestock farming, Toledo city in west Parana generates 13 million cubic meters of waste annually. The project aims to convert waste and waste into hydrogen derivatives and produce biogas from liquid residues. This process is projected to annually reduce 1.4 million tons of CO2 emissions while producing green fuels, marking a significant step towards sustainable energy and environmental conservation.

Bangalore, India

Bangalore, India's third most populous city, faces water security challenges due to over-reliance on a non-perennial river and reservoir, exacerbated by erratic rainfall patterns from climate change and declining groundwater levels. Wastewater management remains inadequate. Additional water supply systems have been introduced for supply-side management. Initiatives like aerators, innovative use of treated water, AI-IOT groundwater monitoring, and many other initiatives address demand-side management. The city plans to focus on innovative technologies, financial instruments, policies, and partnerships to tackle these pressing issues.

3 Summary of the Breakout Groups Discussions

The six breakout sessions aimed to foster interactions between the participants on how to co-create global innovation projects that address the challenges highlighted by the participating cities as well as how to design the implementation of UGIH's City Challenge Initiative. The discussions in breakout groups took place in two tracks. Track 1 centered on initial discussions about designing the city challenge while Track 2 focused on the identification and prioritization of challenges and formulation of Innovation Projects for the satisfaction of core human needs. Discussions around the track one concentrated on various aspects of the City Challenge project including the prize, low-cost financing for cities, engagement of citizens, and tools for Measurement, Reporting, and Verification (MRV).

The breakout group sessions were facilitated by the following discussion leaders:

- Amy Hochadel, Expo City Dubai
- Conrad Felix Michel Landis, Athens University of Economics and Business
- David M. Babson, XPRIZE
- Jannik Kaiser, Unity Effect
- Tatenda Lucia Wangui, Deloitte Sustainability and Climate GmbH
- Wes Geisenberger, HBAR Foundation

The discussions within the breakout groups culminated in the formulation of three innovative project proposals and strategies for implementing The City Challenge. The sections below present the key outcomes and summaries of the discussions.

3.1 Track 1 Breakout Groups - City Challenge

The City Challenge is a UGIH-led initiative with a two-fold objective:

- To contribute to fostering enhanced transformative climate and sustainability actions by cities and facilitating their transition to a low-carbon and resource-efficient pathway, able to provide flourishing life to their citizens while contributing to the planetary well-being. This, in return, will contribute to the achievement of the global climate and sustainability goals.
- To contribute to the inner development of the citizens in an empowering environment, providing opportunities to undertake with passion and talent meaningful activities to realize a noble vision.

Four breakout groups centered discussions on how to conceptualize the design and effective implementation of this challenge. The key outcomes of these discussions are summarized in the sections below.

a) Creating an interlocking series of prizes with a focus on the Human Impact of the City Challenge

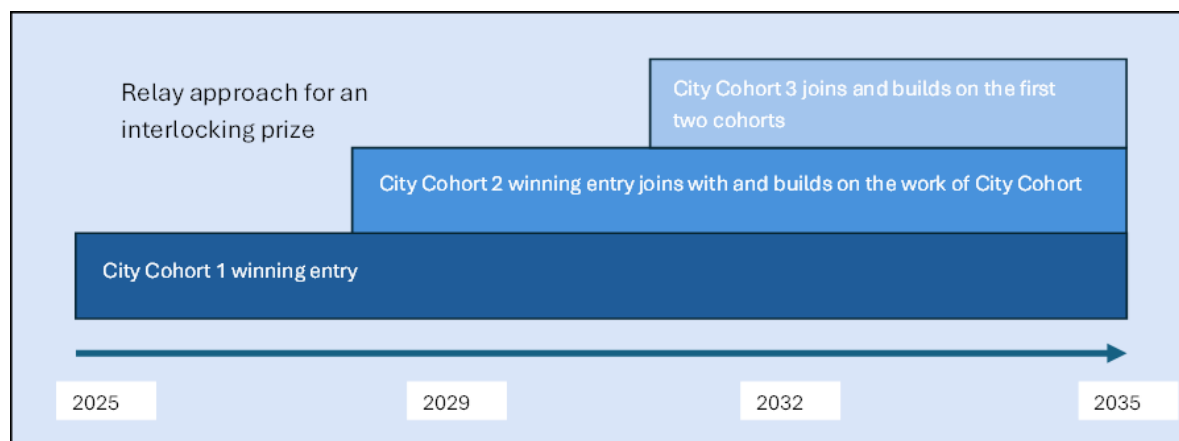
The discussion focused on the holistic approach necessary for City Challenge. Participants suggested that “the City Challenge” needs to be defined by each city using the SDGs criteria as a guiding framework without being too directive about the intervention. They recommended a framework starting with core human needs and translating these into social, environmental, and economic outcomes, thereby improving quality of life.

Two strategic approaches were highlighted:

- A relay approach, where efforts compound over time.
- An SDG building block approach, connecting various sectors.

Participants advocated for a consortium model rather than single-product solutions, promoting cities as long-term solution providers. Cities can find each other to form cohorts across sector-focus areas on the digital platform to submit their proposals for the challenge. The model for the consortium also takes into account the political, and financial instruments, stakeholder partnerships, manufacturing capital, physical climate, and socio-cultural aspects.

The breakout group proposed a phased approach spanning ten years with three rounds, where each consortium acts as a steward of their project, sharing insights annually.



An SDG building block approach was suggested for cumulative sector-specific prizes addressing all SDGs, employing the SDG doughnut model to position submissions and build an overarching solution over time.

Participants emphasized the importance of ensuring emerging markets in every city cohort submission to prevent cities with more resources from winning all the prizes. They also highlighted the need for submissions to demonstrate how their models or solutions can be effectively adapted across various cities.

b) Stakeholders to design the city challenge

The breakout group recommended developing a clear vision for a global city prize that would be transformative and aims to identify key areas of interest and potential impacts. For effective fundraising and sponsorship, the group proposed establishing two layers of sponsors. The first layer would support the overall vision and purpose of the prize. They also suggested a second layer consisting of individual donors and stakeholders, who would be uniquely curated to support specific components of the various prizes, thereby contributing to the larger vision.

c) Proposed Phases of the City Challenge

The purpose of the prize is to enhance the organization and coordination of cities and communities worldwide that are already addressing local climate challenges. This challenge aims to create a sense of urgency and a race towards more ambitious climate goals. The group suggested three phases for the challenge.

In phase 1, cities will ideate and submit proposals outlining their futuristic visions, setting goals based on what is needed for them to win a prize, but not necessarily based on their current capability, climate, and sustainability action plans as well as the climate and sustainability innovations they need to realize their vision. Corporate sponsorships and regional support will be essential to enable cities to develop these applications in addition to external consultancies. The digital platform will support the process of reaching more cities.

The support below could be provided to the participating cities:

1. Curating City Challenge Teams (Dec 2024 - March 2025):

Helping cities identify and address key themes of their climate plan and building teams with collaborators (other cities, solution partners, creative and scientific communities) to address them.

2. Sketching Climate Action Plans and Narratives (March 2025 - June 2025):

Moderating the City Challenge Teams using design thinking methods to co-create blueprints for their action plans, including narratives for the film.

3. Climate Action Plan Innovation Day (June / Co-hosted with UNFCCC):

Organizing an event under the city challenge campaign for the challenge teams to showcase their action plan blueprints and to attract additional cities and collaborators, especially the creative community, to support the cities to turn the blueprints into winning proposals until the end of submission in October 2025. This can be a transition into consulting support.

In phase 2, individual prize competitions will be developed to crowdsource solutions globally in key areas that support the cities' visions, identified by cities during the first phase of the challenge. These focused prizes will target specific areas such as energy systems of the future, mobility, zero-land agriculture, food systems, and so on. Participants recommended this phase to harness global innovation and expertise.

Phase 3 involves implementing the solutions identified in Phase 2 into city strategies. Cities will identify unique approaches that align with their specific needs in various areas. The participants suggested that the assessment criteria for determining the winner should include the most creative and effective means of achieving ambitious climate goals. Metrics for evaluation will include emission reductions, resource reductions, increased livability, well-being in communities, and so on.

The immediate next step is to outline the vision and delineate the criteria for the first ideation phase by the end of this year. Phase 1 will take place throughout 2025. Participants emphasized the importance of considering the complexity and organic nature of cities, including those of different natures and structures, in the planning process.

d) Novel measurement and lifecycle assessment approaches

The breakout group came up with a goal statement and a subset of rules and measurements. The goal is to utilize a system that enables comparative rulesets for Measurement, Reporting, and Verification (MRV) tied to positive climate, environmental, and social outcomes that are comparable and inclusive of common definitions across local communities (cities and regions).

Subsets of rules are as follows:

- Digital tool for methodology digitization that affords for climate, environmental, and societal measurement, reporting, and verification [MRV]
- All methodologies and modularized definitions must be public
- Data must be collected adhering to the methodology at the time of collection
- Methodologies must be extensible for their context but must be translatable back to shared, scientifically validated methods in alignment with the planetary boundaries

The group also suggested that the measurements need to align to a comprehensive set of climate and environmentally positive outcomes, the baseline must be considered to go beyond products, but measure societal change in consumptive behavior. Lifecycle assessment needs to consider production in addition to

changes in consumer behavior that is regenerative in its societal impact leading to resilient and thriving communities.

Participants highlighted that the prize would benefit the public by promoting a regenerative economy and society through collaborative partnerships and coalitions. Conceptualized as a global hackathon of ideas, partnerships, and coalitions, it seeks to address significant inertia points in community value chains and ecosystems, fostering innovative solutions and collaborations. It was highlighted that this funding represents unique opportunities to enable the measurement of emissions (and other climate, environmental, and social liabilities) and the deployment of new climate, environmental, and social innovations as well as financial solutions that enable the regeneration of our planet.

The group also emphasized that there should be a formulaic definition that should be high-level and nonrestrictive. MRV would be required to be correlated with the defined “regenerative outcome”. Taxonomically there would need to be both clear definitions and calculations supported by scientific evidence. This would include both top-down definitions, as well as bottom-up outcomes that are collected via stakeholder engagement. This would be primary data where possible and not estimated. The outcome would be either Degenerative or Regenerative in a quantitative state. All these need to be tied to core human needs. Actions lead to meeting human primary (outcome), secondary, and tertiary value requirements for adoption.

e) State of Play: Low-cost Financing Mechanisms for Cities

Participants discussed strategies to engage cities in low-cost financing mechanisms. They emphasized close coordination with partners involved in city projects (ICLEI, GCOM, C40, GIB, SDSN, UCLG, etc.) for the challenge. It was also suggested to provide an initial budget allocation to cities to develop ideas.

A robust engagement campaign tailored to different regions was proposed, considering varied financial needs. For instance, European cities can tap into allocated or forthcoming funds from national recovery and resilience plans for climate actions, whereas other regions may require different funding approaches.

Fundraising strategies were discussed by the participants, drawing on successful practices from other initiatives. Engaging partners and family offices open to fundraising, and developing innovative business models to attract investor funding were highlighted. Mainstreaming the valuation of ecosystem and social services was noted as an effective measure in generating interest and financing.

The group suggested adapting prize structures to include activities for the top 10 cities instead of a single large prize. Additionally, the idea of city twinning was proposed, where advanced cities could partner with less advanced ones to share capabilities and resources, fostering mutual development and sustainability.

3.2 Track 2 Breakout Groups – The Identification and prioritization of challenges and formulation of Innovation Projects

a) Challenges and processes to address them

i. Citizen participation, behavior, and city leadership

A significant gap identified was the misalignment between administrative plans and citizen participation. Participants recommended that to bridge this gap, cities can consider the following four options:

- Co-Creation and Participatory Approach: Involve citizens directly in the decision-making process.
- Transparency Mechanisms: Implement transparent political decision-making processes.
- Platforms for Participation: Create spaces for citizen engagement, both physical and digital.
- Referendums: Use referendums or digital tools to validate decisions with citizen input.

Participants emphasized the role of city authorities in guiding citizen behavior. They suggested that citizen behavior should be directed by city policies. While citizens receive information from various sources, they often lack connections to policy frameworks. Also recommended to utilize social media campaigns, celebrity movements, and public lectures to drive actionable change among the populace.

ii) Access to finance and carbon market

Participants identified access to finance as a critical gap. There are existing solutions such as carbon trading but cities don't have much information on these. Participants suggested creating a database for existing solutions that are demand-driven and AI-powered where cities can access information on existing solutions. Lack of political will in adopting new solutions is also a challenge and successful examples and projects can be used to persuade political leaders.

iii) Indigenous Knowledge and Regional Solutions

The participant highlighted the importance of tailored innovation and stressed on identifying and implementing region-specific solutions such as the solutions implemented for addressing extreme heat in Mali in 2024. Also dual focus solutions are important for example, seek solutions that not only alleviate issues like extreme heat but also reduce emissions. Also, energy poverty and security should be factored in when developing and applying innovations.

iv) Diverse Perspectives and Success Metrics

Participants suggested that it is important to understand that different entities have unique perspectives and success criteria. Comprehensive KPI Analysis is important. It was recommended to develop key performance indicators (KPIs) that include techno-economic analysis, going beyond measuring end emissions to include economic aspects. It was also suggested to move beyond impact data to build a strong business case for proposed models.

b) Forward-Looking Steps

- a. Developing Compelling Cases: Create robust examples for counties and cities to follow, highlighting successful implementations and outcomes. Possibly utilize the UGIH to form 'sister cities'.
- b. Addressing Short-Term Changes: While focusing on long-term solutions, also address short-term changes at the local level to maintain momentum and show immediate benefits.
- c. Measuring Efforts and Progress: Establish clear metrics to measure the efforts put into initiatives. Implement a biannual stocktake with yearly prizes awarded for significant achievements. Adopt a

project-based approach, particularly focusing on shelter and emissions reduction in specific case study areas. Ensure robust data collection methodologies, accurate accounting practices for estimating data, and the use of the best assurance and verification systems to maintain data integrity and reliability.

3.3 Proposed Global Innovation Projects For Addressing The Challenges

Project 1: Handprint campaign	Description: The handprint concept aims to shift the focus from reducing harm (footprint) to actively doing good (handprint). It encourages actions that contribute to a sustainable and thriving future, inspiring others and fostering societal changes that promote sustainable behaviors as norms. The project aims to develop this concept further and initiate campaigns in counties and cities. This involves bringing communities together, increasing active participation, and capacity building, and recognizing the less tangible contributions and their ripple effects.
Project 2: City Solution Playground	Description: The project aims to bring the right solutions or innovations to meet city targets. It is proposed as a challenge in two or three cities, which will serve as testbeds for innovative technologies. Key urban challenges will be identified, and solution providers will be invited to pilot their technologies through a call. While the cities will not fund pilot projects, they will provide necessary space or project areas for implementation. Solution providers will self-fund the pilots. If successful and feasible, cities will commit to scaling these solutions citywide.
Project 3: Waste to Value (coconut project)	Description: The project aims to convert waste into valuable products using circular economy principles by producing activated charcoal from coconut husk shells. This approach targets countries with abundant coconut waste. Existing technologies will be used to transform this waste. Activated charcoal can be utilized for wastewater treatment, addressing water scarcity challenges. The project will follow a cooperative model.

Photo Gallery

