United Nations Climate Change Global Innovation Hub

Seventh Systemic Innovation Workshop

Workshop Report

Date: 25th July 2024

Venue: Deloitte Africa, 5 Magwa Crescent, Waterfall City
Johannesburg, South Africa

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 Seventh Systemic Innovation Workshop at the Deloitte Africa Campus, Johannesburg, South Africa, on July 26th Friday, 2024. The objectives of the workshop were fourfold:

- To provide cities and counties (rural and urban) 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 (rural and urban) are referred to as the Future Outlook of Rural and Urban Counties.
- To discuss possible challenges that the solution providers 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 (rural and urban).
- To explore whether, for some of these challenges for Cities and Counties (rural and urban) 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

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 seven workshops in the following cities that have resulted in the ideation of fourteen global innovation projects[1]:

- 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)
- Johannesburg, South Africa (July 2024)

UGIH's Seventh Systemic Innovation Workshop featured plenaries as well as three breakout sessions. 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. Mr Simon Van Wyk, Director, Deloitte Africa, in his keynote address, emphasized that changing global culture hinges on understanding attitudes and behaviors, as attitudes shape behaviors, which in turn

[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), eKasi Trade, Resilience in a box, Municipal Playbook Model

define culture. He also highlighted four key perspectives essential for innovators: Hindsight, Plain Sight, Insight, and Foresight.

Representatives from the South African Local Government Association (SALGA), the County of Karlsruhe, and Bengaluru city presented the challenges cities are facing, the actions they have undertaken, and the future they aspire to build. A plenary session following these presentations provided a platform for innovators to delve deeper into these challenges and discuss potential actions and solutions. In line with these discussions, Babu Padmanabhan from STEER World presented the global innovation project REST - Resilient Earth Settlement for Tomorrow, which was ideated during the 5th Systemic Innovation Workshop organized in India.

In the second part of the workshop, participants were divided into three breakout groups for focused discussions on three themes: Circularity, Infrastructure Resilience, and the Future of Energy. These breakout sessions were conducted in a hybrid mode, with virtual participants also joining the discussions. The insightful discussions led to the formation of three innovative projects, which were then discussed in a subsequent plenary session.

The workshop saw a diverse mix of 103 participants with 62% 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. Figure 1 below shows the types of organizations represented by the participants.

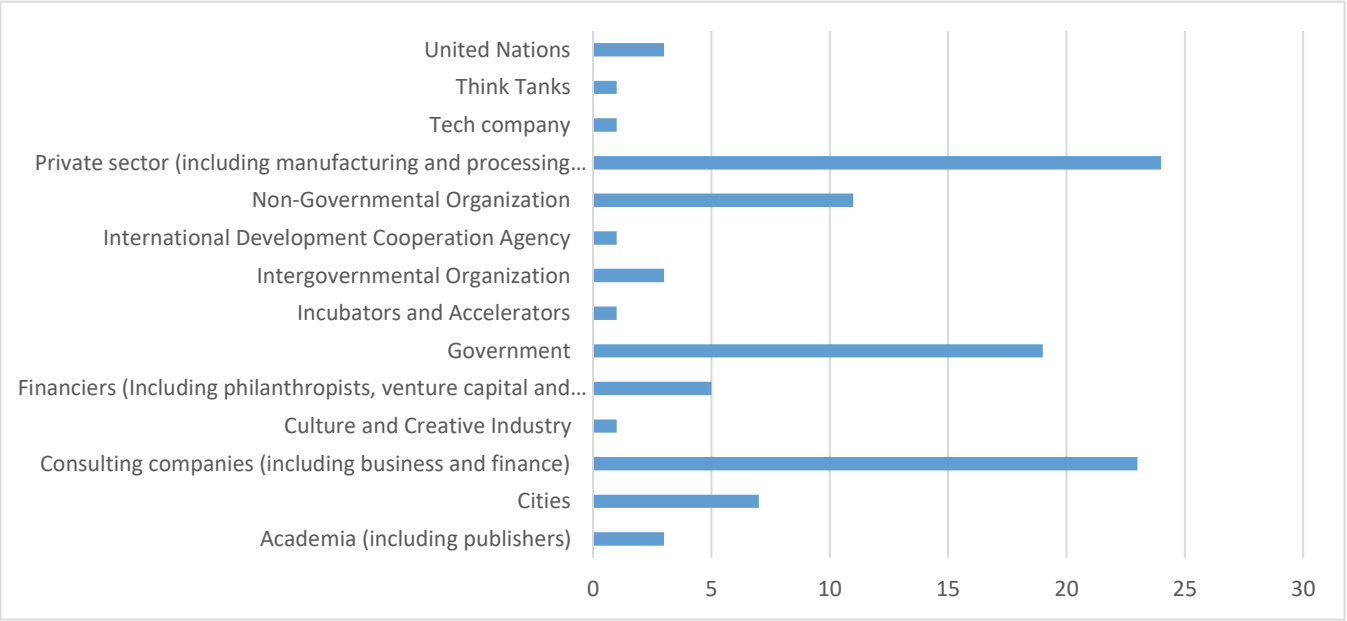

Figure 1: Classification of Participants

2 Understanding the future of cities and their challenges

The session titled “Visioning a Sustainable Future: Visioning A Sustainable Future: Understanding The Future That Cities, Rural Counties, And Urban Counties Would Like To Build For Their Citizens And The Challenges” featured presentations from city representatives around the world. Following these presentations, innovators and solution providers responded to the insights shared. Below is a summary of the presentations and discussions:

South African Local Government Association (SALGA), South Africa SALGA is an organization representing all 257 local governments in South Africa. They focus on partnerships with the private sector to advance innovation. Current innovative initiatives include using drones for risk, vulnerability, loss, and damage assessment, and low-cost sensors for air quality monitoring. SELGA also works with the local governments on environmental management, biodiversity, air quality, and climate change by organizing peer-to-peer learning and capacity-building activities, city profiling, etc. Additionally, they review municipalities' climate change response plans to ensure that innovation is integrated and effectively implemented.
County of Karlsruhe, Germany The county of Karlsruhe is located in the south of Germany. The county has international climate partnerships with the city of Brusque in Brazil and cooperates in various areas such as energy, mobility, flood protection, water and wastewater supply, training, and exchange of experts to learn from each other. Karlsruhe’s 2016 action plan emphasizes renewable energy, resource conservation, sustainable mobility, waste management, and so on. 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 as part of the action plan. Some projects failed in practice because of technological and cost issues. Water management will be the key focus in the coming years addressing drinking water to flood protection, particularly in light of devastating floods experienced in both southern Brazil and Germany.
Bangalore Water Supply and Sewerage Board, 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. The city is planning to diversify its water portfolio through multiple measures. 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.

Technical Capacity: As highlighted by a participant, technical capacity is the primary challenge cities face in developing climate action plans. Effective plans require detailed data, including greenhouse gas emission inventories, to accurately measure and manage carbon footprints. Another significant challenge is the availability of downscaled data for risk and vulnerability assessments at the ward level. One participant emphasized the importance of considering counter-urbanization and semigration (semi-emigration) in city planning, as even a small population increase can strain resources and service delivery.

Financial Challenges: Participants also raised concerns about the financial resources needed to implement climate action plans. Cities often have budgets that are just sufficient for their day-to-day core operations. Additionally, cities require support in accessing carbon markets and other innovative financial resources beyond their regular budgets to effectively implement these action plans.

Procurement Constraints: Engaging, evaluating, and onboarding innovators is a practical constraint for cities in implementing innovative solutions due to procurement issues. Participants emphasized the need to cultivate a culture that promotes values and ethics, encouraging participation rather than using regulations to hinder innovation in the regulatory environment.

Focus on Small Innovations: A participant suggested prioritizing small, low-capital projects that drive daily life innovations, which can collectively lead to significant impacts and eventually scale up to larger projects.

Private Sector and Regulatory Challenges: A participant emphasized that the private sector is eager for innovations but requires proof of concept, which affects financing and budgeting. From a government perspective, while there is a desire to embrace new technologies, regulatory and decision-making processes can pose challenges. To tackle these issues, participants emphasized the importance of initiating stakeholder engagement early and proactively managing permitting processes to prevent delays. Another participant noted the challenge corporates face in setting ambitious goals due to doubts about their feasibility and scrutiny from rating agencies and media. To address this, it was suggested that companies adopt a dual approach: set targets based on both what is achievable and what is necessary, and maintain full transparency.

Leadership and Risk Management: Participants highlighted that leadership is a crucial factor in the success of innovative projects. In many cases, there is a tendency to avoid risk. Instead, there should be strategies to integrate risk management into the problem-solving processes. Another participant raised the issue of having only long-term targets without medium-term milestones. In response, it was suggested by another participant to reverse engineer the process: to achieve outcomes, projects must work, and for them to work, they must be bankable and risk-managed. The participant also suggested a few resources where the future projections of population growth, places of economic and environmental development, and future climate data are available and suggested using these inputs to manage risks.

A participant suggested that many technologies, such as green hydrogen and carbon capture and storage, are not fully developed and pose high risks of failure. Funding these technologies is challenging as their rates of return differ from normal investments and the associated costs of capital are high. Making decisions considering these factors is not an easy task.

Collaboration and Support for Smaller Enterprises: It was suggested that all entities should collaborate with the different organizations evolving on their value chain to improve the performance of the value chain as a whole. Another participant suggested that supporting smaller enterprises to transition is exceptionally important and it should be done in parallel. And the same goes for solution providers and innovators.

Bottom-Up Approach for Innovation: Participants highlighted the importance of a bottom-up approach for innovation, starting locally and then scaling up to the national level. This involves unlocking the potential of inventors and innovators to solve local problems and then scaling these solutions to national or international levels. A participant noted that South Africa has a significant informal economic sector that survives on its own. Exploring ways to activate and improve the capabilities of this sector is important.

Just Transition: A point on just transition was raised, flagging the importance of making communities aware of the transition and developing their skills to the extent where they can form part of those value chains.

3 Summary of the Breakout Groups Discussions

The participants were divided into three breakout groups to discuss challenges and develop solutions related to circularity, infrastructure and climate resilience, and the future of energy. These productive discussions led to the creation of three innovative projects. Key points from the breakout group discussions and details of the innovation projects are as follows.

3.1 Breakout Group 1 – Circularity

Participants discussed several key issues surrounding the topic of circularity. A major concern is the lack of implementation and buy-in for the concept of circularity. There is also a significant inclusion gap, as many people, especially in under-resourced communities, are unaware of circularity and marginalized from related solutions and funding. Education and awareness are crucial, with school-based programs highlighted as particularly impactful. Participants emphasized shifting conversations from risk mitigation to opportunity creation. For circularity, three elements are vital: the social element, which involves educating and empowering consumers to prevent waste; the technological element, which includes leveraging current recycling and recovery technologies; and the design element, focusing on waste minimization and enhancing product end value for circular economy integration. Additionally, challenges such as siloed operations within government and sectors, illegal dumping, and creating value for non-recyclables and organics were also discussed.

3.2 Breakout Group 2 – Infrastructure and Climate Resilience

The discussion focused on two main aspects: the increasing frequency and severity of extreme weather events and how to protect critical infrastructure, and the future-proofing of infrastructure against climate change. Participants began the discussion by addressing the infrastructure necessary for resilient communities, with particular emphasis on transportation, schools, and hospitals. Flooding emerged as a major natural hazard, underscoring the importance of robust sewage and water infrastructure. The conversation also covered the roles of smart and soft infrastructure. Infrastructure challenges specific to Africa were highlighted, including issues related to ports, roads, rail, and other transportation and energy infrastructures, and their interdependencies. The participants discussed the impact of climate change on infrastructure, the rising risks associated with aging infrastructure, and the vulnerabilities of informal settlements. The interdependencies between various types of infrastructure and the increasing risks posed by climate change were highlighted as critical challenges for community resilience.

3.3 Breakout Group 3 – The Future of Energy

Participants began the discussion by emphasizing the need for multiple energy sources to meet the city's energy demands, especially in the transportation sector. One participant shared an experience where an energy solution project led to a complete economic redesign, illustrating how the energy sector is intertwined with other sectors. Another participant highlighted that for any industry, access to energy, quality, and reliability becomes critical for any future growth investment. Leadership was identified as a challenge to implementation. Participants identified limited or no access to development funds as a major barrier to innovation. Another participant noted that beyond funding, the lack of bankable projects is a significant limitation. It was suggested that adequate funding, along with the right structures and processes, is critical. Technical and other skills across the value chain, along with municipal capacities in the renewable energy sector, were cited as crucial factors. Mistrust of municipalities towards private sector innovations was also noted as a challenge. Integration of renewable energy sources, such as wind and solar, into the existing grid presents both technical and logistical challenges. The need to address energy access inequality and energy poverty to ensure equitable access to energy was also raised as a critical point.

3.4 Proposed Global Innovation Projects For Addressing The Challenges

Project 1: eKasi Trade **Theme:** Circularity	***Description***: The project aims to the establishment of trade school models and/or trade centers aimed at providing community members (youth-centric) with business and practical training on how to add non-recyclable plastic types and building rubble to compound mixes that can be used to create bricks/furniture/items. The collection of these non-recyclables can be funded by a digital bartering system (mobile data as an incentive) with the idea that the community members are then able to create products that can be linked with retailers, community stakeholders, and in the long-term construction and landscaping companies.
Project 3: Resilience in a Box **Theme:** Infrastructure and Climate Resilience	***Description***: The project's approach involves identifying the climate challenges faced by communities and developing a tool to simulate these challenges. The core idea is to create a digital twin that can intake data, simulate vulnerabilities, explore innovative solutions, and enable modular solutions. These solutions can then be handed over to communities for implementation. The project aims to identify climate challenges at the community level and create a platform that connects grassroots innovations, both local and global. It will facilitate technology transfers to experiment with long-term infrastructure solutions. By focusing on modular, community-driven solutions, the project seeks to empower communities to scale and implement these innovations independently, reducing reliance on centralized implementation mechanisms.
Project 4: Municipal Playbook Model **Theme:** The Future of Energy	***Description***: The Municipal Playbook Model is a comprehensive toolkit to assist municipalities in enhancing their energy security. This toolkit helps municipalities conceptualize demand, understand community needs, and connect with corporates in those areas. It also guides navigating regulatory and legal requirements and includes resources on finance structures and blended finance to create bankable projects. The motivation behind this project is the current disparity in energy security initiatives. While some metropolitan areas are advancing their energy agendas, many municipalities still face significant capability gaps. The project aims to bridge these gaps by simplifying the process of creating bankable projects, fostering collaboration with corporates, and ultimately supporting the development of financeable IPPs or renewable energy projects. The goal is to drive energy transition at the municipal level, making sustainable energy solutions accessible and achievable for all municipalities.

Photo Gallery