United Nations Climate Change Global Innovation Hub

Twelfth Systemic Innovation Workshop

Workshop Report

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Venue: FIESP - Federação das Indústrias do Estado de São Paulo, Brazil

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 Twelfth Systemic Innovation Workshop at the Federação das Indústrias do Estado de São Paulo, Brazil, on May 23rd, Friday, 2025. The objectives of this workshop included:

- To provide urban and rural counties with a dedicated workshop space where, together with solution providers, they 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 urban and rural counties.
- To explore whether a cluster of climate and sustainability solutions is available for upscaled deployment for some of the challenges identified by urban and rural counties and their solution providers.
- 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 related Innovation Projects to address the gaps

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 people and the planet.

The Twelfth Systemic Innovation Workshop (SIW) brought together 70 representatives from Brazilian businesses, financial institutions, scientific and policy communities, and civil society to accelerate systemic climate innovation. The workshop was part of UGIH's broader systemic innovation framework aimed at catalyzing the identification, development, and effective deployment of transformative technologies, policies, financial instruments, business models, and cultural solutions. The event also marked a key preparatory milestone in the lead-up to COP30 in Belém, and emphasized subnational engagement, co-creation, and the development of solutions that address the needs of both people and the planet. The workshop began with welcoming remarks delivered by Daniele Violetti, UNFCCC Senior Director, who introduced UGIH as a platform that brings together diverse stakeholders to co-create solutions that go beyond traditional

sectoral mitigation. He contextualized the workshop within the outcomes of COP29 in Baku and highlighted the importance of inclusive engagement from cities, regions, industry, and communities in implementing these frameworks.

This was followed by a series of keynote presentations that illustrated how different levels of government and regulatory bodies are mobilizing innovation. Marisa Barros, Sub-Secretary for Energy and Mining for the State of São Paulo, presented the state's PlanClima 2050, a roadmap for carbon neutrality that aligns decarbonization with social equity. Luiz Gylvan Meira Filho, a senior climate scientist and professor, delivered a thought-provoking intervention calling for more rigorous climate accounting. Daniel Maia, Director of Brazil's National Agency for Petroleum, shared how regulatory frameworks can unlock innovation. He highlighted a 25-year-old policy requiring oil and gas operators to invest 1% of revenue in R&D, which in 2023 alone mobilized over 14 billion reais into innovation projects.

Following the keynote session, the workshop hosted two high-level panel discussions.

The first panel focused on understanding the challenges and needs of cities and subnational actors in their carbon neutrality journeys. Subnational leaders from São Paulo State, the cities of Ribeirão Preto, Praia Grande, and São Paulo discussed region-specific challenges such as wildfires, urban heat, infrastructure deficits, and water scarcity. They emphasized the importance of decentralization, community engagement, circular economy initiatives, and access to finance. The second panel focused on financing climate and sustainability innovations, featuring leaders from Brazil's financial and investment ecosystem who explored how blended finance, results-based instruments, and carbon markets can channel capital toward local and scalable climate solutions.

In the afternoon, participants were divided into six breakout groups, each facilitated by an expert, to co-develop systemic innovation concepts aligned with UGIH's framework. The energy transition group explored opportunities for scaling renewable generation, energy storage, and grid resilience. The carbon finance group proposed new financial instruments, including subnational carbon credits and impact-linked bonds. The sustainable mobility group focused on urban infrastructure, e-mobility, and equitable access to clean transportation. The nature-based solutions group developed ideas for biodiversity corridors, reforestation, and climate-resilient agriculture rooted in local knowledge. The sustainable lifestyles and education group emphasised behavioural change and proposed a cross-cutting education campaign targeting youth, educators, and consumers. The waste management group envisioned circular economy districts, digital traceability tools for waste, and producer responsibility schemes. Each group identified specific project ideas, policy enablers, and partnerships needed to take their concepts forward. By the end of the day, **four** innovation project ideas were formulated by the breakout groups. These projects, covering themes from bioenergy to electrification, are now being further developed with technical and strategic support from UGIH.

The workshop reaffirmed the value of the UGIH as a neutral, collaborative arena for systemic innovation, one that links stakeholders across jurisdictions and sectors to translate ambition into action. Participants left with a shared commitment to furthering their ideas and partnerships in the months leading to COP30 in Belem.

2 Understanding the future of cities and their challenges

2.1 Open plenary: Reaction to the envisioned future described by the participating rural and urban counties

The opening plenary underscored the urgency of promoting systemic and transformative innovation to complement existing sectoral mitigation efforts. Nitin Arora emphasized that innovation must go beyond technological fixes and address the underlying needs of human beings in more sustainable ways, even rethinking consumption patterns, service delivery, and well-being. He invited participants to reflect on how climate solutions can be embedded in daily life, urging them to adopt a human-centric perspective in all breakout and panel discussions.

Daniele Violetti set the global context by outlining three major outcomes of COP29 in Baku: the adoption of new climate finance goals, the finalization of the Article 6 rulebook on carbon markets after nearly a decade, and the operationalization of the Global Goal on Adaptation. He stressed that while these developments provide a strong framework, much work remains to match ambition with action. He applauded Brazil's leadership as host of COP30 and encouraged the São Paulo workshop to generate tangible outputs that could contribute to the success of the summit in Belém. He also highlighted the Innovation Hub's potential to bridge national and subnational actors, creating a space for radical experimentation and policy co-creation.

The plenary reinforced that future climate action must be inclusive of all stakeholders: cities, investors, local communities, technology providers, and civil society.

2.2. Keynote Speeches

Marisa Barros shared São Paulo's multi-pillar climate strategy, highlighting its Climate Action Plan 2050, which balances emission reduction, economic transformation, and social inclusion. The plan targets high-emission sectors such as transportation and energy while embedding climate equity through access to infrastructure and affordability. She also introduced FinanciClima, a landmark climate finance tool created by state law. FinanciClima blends public oversight with private execution, utilizing escrow accounts and multi-stakeholder governance. The fund supports ecosystem restoration and renewable energy infrastructure, and can receive contributions from public fines, carbon payments, individual donations, and international institutions.

Dr. Luiz Gylvan Meira Filho called for a rigorous re-examination of how climate risk is measured and addressed. He proposed integrating marginal contribution analysis into local project assessment, calculating how much a specific activity adds to global temperature increases. He also argued for more transparent economic modelling of climate costs, including proper discount rates and the acknowledgement of intergenerational equity. In his view, failure to consider long-term consequences through short-sighted discounting could result in irreversible damage, especially in vulnerable ecosystems like the Amazon.

Daniel Maia presented ANP's innovation governance in the energy transition. Through a legal provision requiring all oil and gas operators in Brazil to allocate 1% of revenues to R&D, over BRL 14 billion was invested in innovation projects in 2023 alone. He described how the NaVi startup acceleration program and experimental regulatory frameworks enable integration of emerging technologies such as low-carbon hydrogen, biofuels, carbon capture, and digital platforms for methane monitoring. Maia emphasized that

ANP's regulatory sandbox approach allows for flexibility and collaboration with academic institutions, startups, and global environmental agencies such as UNEP and the World Bank.

2.3. Panel Discussion I: Understanding Urban and Rural Counties' Needs and Challenges in Their Carbon Neutrality Journey

This panel focused on how cities and regions are coping with climate risks and leveraging innovation for local resilience. Carina Pereira discussed the state's integrated sanitation and drainage program, Universaliza, which seeks to reach 99% water access and 90% sewage coverage by 2033. She also introduced the Paulista Social Tariff for water affordability and highlighted the need for scale in solid waste processing to achieve cost efficiency and circularity.

Marcos Peçanha detailed Ribeirão Preto's increasing wildfire risks, water security challenges, and lack of urban shading. He advocated for ecological corridors, nature-based solutions, and regional PPPs for water supply, noting that cities must learn from each other's mistakes and scale what works. He emphasized the value of incremental innovation rather than technology imports that fail to account for local realities.

Valdir Ramos highlighted Praia Grande's demographic surge during holidays, which expanded the population from 350,000 to over 2 million. This leads to infrastructure overload and necessitates smarter planning. He underscored the lack of national guidance for aligning city budgets with climate resilience and stressed the need for ongoing fiscal support, improved administrative capacity, and better regulatory alignment.

Marina Bragante offered a visionary perspective rooted in systemic equity. She argued that urban planning must shift away from car-centric development toward a decentralized, "15-minute city" model. She called for rethinking public transportation, investing in urban agriculture, and embedding waste reduction at the community level. She linked climate action with social justice and emphasized the importance of depolarizing the climate discourse to ensure inclusive participation.

2.4. Panel Discussion II: Financing Climate and Sustainability Innovations

The purpose of the panel was to expand on the tools and institutions needed to mobilize capital at scale for climate innovation. Drawing on themes from the keynote by Marisa Barros and Daniel Maia, the discussion likely covered:

- How blended finance mechanisms like FinanciClima could serve as models for other regions.
- How regulatory agencies like ANP can unlock innovation through dedicated funding and sandbox experimentation.
- The need for institutional investors to better recognize the long-term value of local climate infrastructure, especially when paired with policy risk guarantees or carbon market linkages.
- The importance of developing project pipelines that are investor-ready, especially in lower-capacity municipalities.
- Ways to operationalize Article 6 carbon market linkages at the subnational level.
- Best practices from international institutions such as the Green Climate Fund, Inter-American Development Bank, and Climate Policy Initiative, which are increasingly focusing on adaptation and resilience finance.

This panel would have helped clarify how innovation funding can be governed in ways that balance inclusiveness, impact, and scalability.

3 Summary of the Breakout Groups Discussions

The workshop participants were divided into six thematic breakout groups to collaboratively explore key challenges and co-develop actionable solutions across critical areas of climate innovation. The facilitated themes included:

- Energy Transition
- Nature-based Solutions
- Carbon Markets and Finance
- Sustainable Mobility
- Sustainable Lifestyles and Education
- Innovation in Waste Management

Each group brought together a diverse mix of policymakers, private sector actors, academics, and community representatives, fostering cross-sectoral dialogue and systems thinking. These sessions enabled participants to share local experiences, identify policy and financing barriers, and propose pilot initiatives that could be scaled across regions. The interactive format helped align innovation efforts with community needs and supported the generation of over ten high-impact project ideas now being advanced with support from the UNFCCC Global Innovation Hub.

4 Proposed Global Innovation Projects for Addressing Current Challenges

Project 1: Innovation Hub Energy Transition Private Task Force **Theme:** Energy	***Description***: This project aims to establish a peer-to-peer (P2P) learning and innovation exchange platform to accelerate the adoption of green innovations across sectors and regions. By fostering transversal collaboration between municipalities, businesses, and institutions, it will reinforce the uptake of sustainable technologies, policies, and business models. The platform will include monthly virtual meetings and an annual in-person conference, promoting replication of successful initiatives, lowering barriers for green startups, and building cross-sectoral synergies. While funding needs are not yet quantified, the project expects considerable local impact and no major initial risks. With support from UGIH and three core partners, it will serve as a complementary initiative, enhancing the systemic impact of existing climate actions through shared knowledge and coordination.
Project 2: Biomethane Gas Station **Theme:** Bioenergy	***Description***: This project involves the deployment of a biomethane-based fuel solution by Usina Cocal, including the operation of a dedicated gas station and the replacement of 23 diesel trucks with biomethane-powered vehicles. Currently operational and funded through internal resources, the project aims to significantly reduce greenhouse gas emissions—estimated at 1,000 tons of CO_2 annually—by substituting fossil diesel with cleaner, renewable fuel. It stands as a practical example of sustainability innovation in the energy and transport sectors, contributing to decarbonization goals. With the project already in motion and delivering measurable impact, no immediate risks or additional support needs are identified at this stage.

Project 3: Battery System (BESS) for Commerce and Industry **Theme:** Storage	***Description***: This project aims to implement innovative battery storage systems for commercial and industrial (C&I) clients in Brazil to enhance the integration of renewable energy, reduce reliance on diesel generators, and lower overall energy costs. The solution offers automatic backup capabilities and optimizes the use of solar energy, representing a technological innovation in the Brazilian context. With implementation planned for 2025, projects will be customized in direct consultation with clients. Led by Helexia and Voltalia, the initiative seeks UGIH support through networking and matchmaking to identify companies in need of such solutions. Impact will be assessed by tracking reductions in diesel use and improvements in solar energy utilization. While regulatory challenges remain the primary risk, off-grid deployment is being pursued to mitigate this barrier.
Project 4: Electrifying Communities - Amazonas **Theme:** Electrification	***Description***: This project aims to deliver reliable solar energy systems with battery storage to two remote riverside communities in the Amazonas region, where power outages severely impact daily life, education, health, and local economies. Designed through comprehensive field studies, the systems will ensure at least 36 hours of energy autonomy, improve quality of life, and enable broader development efforts. In partnership with Fundação Amazonas Sustentável (FAS), Schneider Electric, and Enerwatt, the initiative also serves as a platform to engage private sector actors interested in supporting sustainable development in the Amazon. Corporate donations will be directed to FAS, which will manage implementation and demonstrate measurable ESG impact, aligning with multiple SDGs. Fundraising is planned for 2025, with implementation in 2026. UGIH's role will involve raising visibility and advancing innovative financing models that bridge private capital, civil society, and local needs. Impact will be assessed using ESG methodologies and Theory of Change frameworks, while the primary risk lies in securing adequate funding, as the delivery partners have strong technical experience.
Project 5: House of Perception (Casa da Percepção) **Theme:** Transdisciplinary Education	***Description***: The House of Perception is an innovative educational and experiential hub in São Paulo that bridges personal transformation and systemic climate action by using the Inner Development Goals (IDG) framework, immersive storytelling, and participatory workshops. It replaces traditional learning with sensory-rich, transformative experiences that foster emotional resilience, systemic thinking, and climate literacy, empowering visitors to become active agents of change. Designed as a living laboratory where climate, art, and personal growth intersect, the House invites community-focused co-creation and collective solution-building, ensuring relevance and engagement. The project's curriculum is shaped by trained facilitators and experts from diverse fields, making each visit impactful and deeply personal. The House is designed for scalability, with toolkits and advisory support to enable replication in other cities and countries, thereby catalyzing a broader movement for climate innovation and transdisciplinary education. Income sources are anticipated from partnerships, sponsorships, and tailored corporate programs, with a strong commitment to maintaining free public access and inclusivity. The project aims to shift the paradigm of climate education, transforming abstract climate concepts into lived experiences, building social health, and nurturing a new generation of climate-conscious, resilient, and collaborative citizens.
Project 6: Green Innovation Accelerator **Theme:** Climate & Environment	***Description***: The project aims to accelerate initiatives and startups that address climate and environmental solutions through an open innovation approach. The idea is to hold five annual meetings across Brazil, one in each region of the country, bringing corporate challenges in areas such as energy,

	mobility, waste management, mining, logistics, among others, for startups to propose solutions. The best project from each edition will receive a three-month mentorship from an international accelerator and will have the opportunity to present at a global international forum. We propose to amplify the impact of the UN Global Innovation Hub in Brazil. The expected outcome is the development of new solutions to address the environmental challenges faced by Brazil's largest companies. These projects may tackle regulatory, environmental, social, or financial issues through technological innovation, process innovation, or the creation of new financial or guarantee instruments.
Project 7: Tapajós Legacy Project **Theme:** Biodiversity	***Description***: The Tapajós Legacy Project is a comprehensive initiative in the Amazon designed to foster sustainable territorial development through regenerative practices, community-led governance, and inclusive economic opportunities. The project focuses on meeting core human needs, such as shelter, nutrition, health, access to services, leisure, clothing, energy, and education by supporting locally driven solutions like sustainable housing, agroforestry, renewable energy, and technical training. It emphasizes technological innovation through integrated agroforestry and clean energy, introduces the Tapajós Legacy Fund as a blended finance mechanism to mobilize concessional and private capital, and pioneers participatory governance models that merge local knowledge with international sustainability standards. Additionally, the project promotes nature-based solutions to restore ecosystems, sequester carbon, and boost biodiversity, strengthening community resilience to climate change. With a funding requirement of $107 million, key partners include local cooperatives, environmental advisors, financial and legal experts, potential international development agencies, and impact investors.
Project 8: National Program for the Closure of Open Dumps Funded by Carbon Credits: An Integrated Solution for Waste Management, Decarbonization, Climate Action, and Sustainable Development **Theme:** Carbon Credits	***Description***: This project seeks to advance global climate action and sustainable development by transforming open dumps in Brazil into renewable energy assets, primarily through innovative carbon credit mechanisms. By incentivizing the closure of around 3,000 open dumps, the program aims to establish a financially sustainable model for proper waste management that significantly reduces methane emissions, improves public health, and generates socio-economic benefits like job creation, social inclusion, and investment attraction. Key interventions include enhanced methane capture technologies, support for recycling and circular economy initiatives, and improved living conditions for communities and waste pickers living near dumps. The project also promotes the creation of green community spaces and expanded access to recycled materials and renewable fuels. At the policy level, it advances methodological improvements in carbon accounting, regulatory frameworks for carbon trading, and alignment with international agreements such as the Paris Agreement. Ultimately, the initiative is positioned to make a major impact both locally by improving health, livelihoods, and the environment and globally, by reducing methane emissions and elevating Brazil's role in climate leadership and sustainable waste management.
Project 9: NatuIA (Nature + IA) — Simple, tech-forward, and bilingual-friendly **Theme:** Nature-based Solutions	***Description:*** This project aims to strengthen climate resilience and sustainable development in vulnerable areas of Brazil by creating *NatuIA*, an AI-powered platform that integrates technological and nature-based solutions. By simplifying access to complex sustainability strategies, the initiative empowers local communities and decision-makers with intelligent tools that support inclusive, data-informed climate adaptation. Over 12 months, the project will develop and deploy the platform in collaboration with local governments, NGOs, research institutions (FGV, SENAI, Escola

	de Cidades), and private sector actors (Vale, Akso, etc.). Key interventions include the use of AI to support environmental monitoring, policy innovation, and climate risk response tailored to community needs. With a funding goal of USD 650,000, the project also contributes to capacity-building and innovation in underserved regions. While impact and risk assessments are still under development, *NatuIA* holds strong potential to advance Brazil's leadership in climate-smart technology and equitable sustainability transitions in a cross-level way.
Project 10: Fund for Waste Circularity on plastic resin recycling in Brazil **Theme:** Circularity	***Description:*** This project, led by OMA Ativos Ambientais (OMA Environmental Assets), aims to establish an innovative investment fund focused on promoting the circularity of waste in Brazil, with a strong emphasis on plastic resin recycling. The fund is designed to fill a critical gap in the country's waste management and climate strategies by financing projects that remove plastics from the environment and reintegrate them into the production cycle through mechanical and chemical recycling. These interventions are expected to generate significant environmental assets, reduce greenhouse gas (GHG) emissions, and deliver measurable socio-environmental impact. By addressing Brazil's inadequate waste disposal—a major contributor to environmental degradation and emissions—the project introduces a first-of-its-kind financing mechanism to scale the circular economy. Key activities include identifying high-impact recycling projects, building a strong project pipeline, and engaging stakeholders across the private and public sectors. The fund is expected to attract USD 100 million from anchor investors, companies seeking to offset their plastic and GHG footprints, and potentially grants or concessional finance to enhance viability. It ensures full transparency, performance monitoring, and alignment with investor compliance standards. The timeline includes designing the fund structure by August 2025, securing anchor investors by November 2025, and officially launching at the Sustainable Investment Week (SIW) in Rio de Janeiro. UGIH support is sought for stakeholder engagement and outreach to entities aligned with plastic and GHG reduction goals.

Photo Gallery