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The Climate Action Innovation Lab (CAILab)

An inclusive, research-informed innovation lab that bridges the gap between incubation and acceleration, building innovation talent, cultivating climate leadership and supporting under-served innovators journeying from problem definition through to investment-ready, climate adaptation and mitigation solutions.

CAILab is anchored at the African Climate & Development Initiative (ACDI), a research institute at the University of Cape Town.

Overview & Value

Climate challenges are deeply complex, shaped by intersecting socioeconomic, governance, and infrastructure factors, yet current adaptation and mitigation strategies often fall short in addressing these realities. Despite rising awareness of climate risks, many actors lack the tailored support systems and early-stage innovation infrastructure needed to move from intention to action. Too often, existing frameworks fail to connect problem definition, ideation, and implementation, while innovation initiatives focus narrowly on late-stage solutions, leaving underserved innovators and vulnerable communities behind. To advance meaningful adaptation, we must dissolve the boundaries between adaptation, innovation, and design, aligning their iterative, mission-driven processes to create contextual solutions that drive real-world impact.

Key Features

- **A mission-driven innovation cycle:** At its core, CAILab offers a mission-driven innovation cycle designed to accelerate the development of inclusive, locally relevant, evidence-driven solutions to South Africa's most pressing climate challenges, while fostering economic growth and resilience.
- **Support for diverse climate actors:** What sets this lab apart is its ability to engage and support a wide range of climate actors, especially those with limited access to innovation infrastructure or climate risk expertise, by guiding them through rigorous problem definition, co-creation, and solution development to produce investment ready interventions.
- **Commitment to continuous learning and research to improve effectiveness and societal impact:** Importantly, underpinning all CAILab activities is our commitment to continuous learning and research, ensuring that we are always striving to make interventions more effective and to maximize societal impact.
- **Flexible innovation support model:** Its structure and design enable other actors, such as researchers, NGOs, or public officials, to access innovation support suited to their needs, whether through early-stage ideation or refinement of existing projects.
- **Skill-building initiatives for climate innovation:** CAILab plans to introduce a climate leadership and facilitation programme along with targeted short courses to grow the next

generation of innovation talent while strengthening practical skills across the climate innovation ecosystem.

Key value propositions

CAILab has multifaceted value, extending beyond financial returns

- **The Innovation Engine -Strengthen climate adaptation pipeline:** Expanding the pool of investment-ready climate solutions by validating and de-risking early-stage ideas while accelerating development timelines and reducing startup costs.
- **Capacity Building - Global knowledge network & innovation talent development:** Providing access to diverse climate adaptation expertise while training participants to become innovation facilitators and leaders in their communities.
- **Climate Action & Nature - Action-oriented approach & nature-based solutions:** Moving beyond theoretical frameworks to real implementation, reshaping climate adaptation strategies while supporting restoration and protection of South Africa's biodiversity and ecosystems.
- **Socio-Economic Impact -Economic growth & resilience through climate-resilient development:** Driving local job creation in emerging green sectors while generating investment-efficient solutions that deliver long-term savings and meet criteria for development finance and government adoption.

What makes CAILab unique?

CAILab's uniqueness lies in four integrated strengths: **locally-grounded solutions** that combine scientific rigor with community needs, **evidence-driven methodology** that is built on established research and best practices with embedded research programs, **implementation-focused approach** that bridges the gap between ideas and investment-ready solutions, and **inclusive cross-sector collaboration** that validates solutions through iterative testing across diverse domains and stakeholders.

Implementation & Foundation

The CAILab process

CAILab delivers its climate change mission through a structured, multi-stage process that accommodates diverse entry points and innovation needs. Engagement models range from *mission-driven co-design*, where teams align with CAILab's climate priorities, to *problem-focused development* for those bringing defined challenges to *prototype advancement* for teams and innovators with developed solutions seeking to pilot and scale. Innovation cycles adapt accordingly, typically spanning between 6-12 months based on readiness, complexity and stage of entry. Implementation is organized as follows:

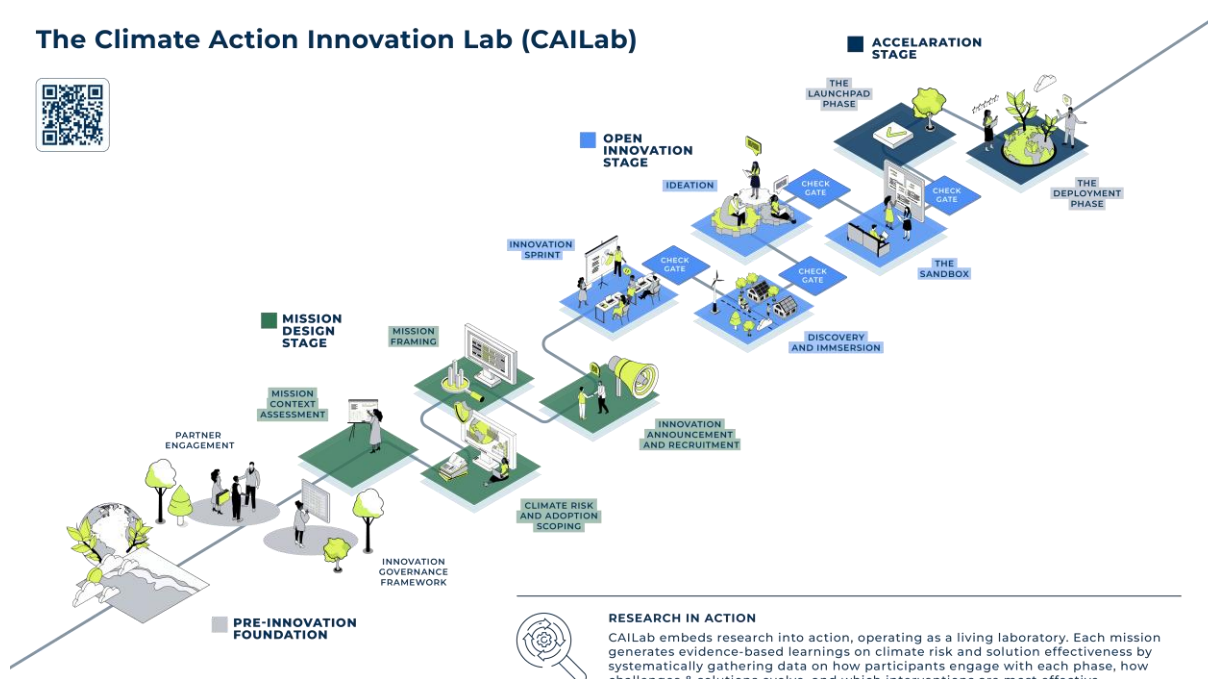
Pre-Innovation and Mission Design: In this foundational stage, CAILab collaborates with partners to identify priority climate adaptation/mitigation challenges and shape focused innovation missions informed by evidence, research and stakeholder engagement. During this phase, Partnerships are established, resources secured, and open calls launched to recruit participants with the vision and potential to drive impact.

Open Innovation & Acceleration: Selected teams enter a facilitated journey that bridges challenges and ideas to implementation through three interconnected phases. Throughout, teams receive tailored support including expert mentorship, design tools, and evidence-based guidance.

- **Immerse & Diagnose:** Onboard a diverse cohort of transdisciplinary teams to deeply immerse in the local context, grounding their understanding in frontline realities, engaging users and research to fully understand the problem space before building a solution.
- **Ideation & The Sandbox:** Teams build, test, and iterate in a collaborative sandbox environment, prototyping and refining tangible solutions directly with communities and other stakeholders.
- **Pilot & Scale:** Validated solutions receive targeted support, resources, and partnerships to bridge experimentation and impact, positioning them for integration into policies, ventures, and investments that drive measurable climate action

Ongoing Learning and Post-Mission Evaluation: Throughout the cycle, CAILab captures data on team progress, solution development, and intervention effectiveness. Post-mission, this learning is synthesized to assess impact, refine the lab process, and contribute to advancing global climate innovation practice.

In parallel, CAILab builds innovation capacity through two complementary offerings: (i) A Climate Innovation Leadership Programme: Training 2-3 annual cohorts in facilitation, innovation methods to cultivate a new generation of innovation leaders. (ii) Suite of courses derived from the innovation cycle, offering specialized training on challenge definition, ideation, and rapid prototyping.



UCT ACDI | CAILab Graphic Prototype | v2 - 27 Aug 2025 | Early concept for testing, co-design & learning | Internal Use Only

Image: An illustration of CAILab's end-to-end approach, connecting early alignment and design with solution testing, piloting, and scaling for climate adaptation and mitigation

Why CAILab at ACDI?

CAILab is anchored at the African Climate & Development Initiative (ACDI), a leading interdisciplinary hub at the University of Cape Town with deep experience in climate research, stakeholder engagement, and applied capacity building. ACDI's institutional strength lies in its ability to convene diverse expertise, spanning climate science, engineering, social science, economics, finance, and policy, alongside strong relationships with local practitioners.

With access to research infrastructure and extensive academic and implementation networks, ACDI is uniquely positioned to host a climate innovation lab that is both rigorous and responsive to real-world challenges. As the host ACDI would engage other departments and units across the university and beyond.

Following a successful pilot phase, we have been actively studying how innovation and design processes can support more effective adaptation, deepening our understanding of what works, for whom, and under what conditions.

Investing in CAILab means supporting a platform with proven capability and a strong commitment to learning, evidence, and impact. It's a step toward building the innovation ecosystem Africa needs to drive equitable, climate-resilient development at scale.

Next Steps

CAILab is laying the groundwork for its next mission-driven innovation call in 2026. Over the coming months, we're focused on validating our methodology, refining our operational framework and expanding outreach to domain experts, funders, and innovators. To stay informed or contribute to the development of CAILab, please reach out to Prof Gina Ziervogel (gina.ziervogel@uct.ac.za) or Lavinia Perumal (lavinia.perumal@uct.ac.za).

Stay in touch - scan the QR code or [follow the link](#) to connect with CAILab and follow our climate innovation journey.

