



MINISTRY OF REGIONAL DEVELOPMENT  
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# Urban Labs Worldwide: Transformative Practices in Urban Planning

## Key messages

- Urban Labs are an internationally proven instrument to address unprecedented urban challenges.
- Urban Labs provide a sound basis for evidence-based policy making. The collaboration of policy makers in Urban Labs facilitates the reform of planning instruments, administrative processes, or legal frameworks.
- In cities, Urban Labs lead to better, more efficient, and site-specific urban planning.
- Urban Labs motivate citizens to engage in making their city a better place to live, making implementation of the urban policies more acceptable for the affected populations.

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## What are Urban Labs?

An Urban Lab, also known as Real World Laboratory and Urban Living Lab, is an internationally acknowledged urban planning instrument, which uses experimenting and multi-stakeholder collaboration as main planning methods. Urban experimenting is when planners, policymakers, and/or researchers make small, careful changes in places (like neighbourhoods) or processes (like administrative tools) to see their effect. By doing this, they learn about human behaviour in real situations, and how ready, or efficient specific tools are in the given context, as cities can be quite different from one another.

Collaboration is ensured by setting up a multi-stakeholder working group, which explores the challenges, develops, and tests the solutions (through experiments) to supply evidence-based insights to the decisionmakers. Besides local population, Urban labs bring together experts from various fields, such as urban planning, governance, architecture, engineering, and social sciences. This interdisciplinary collaboration generates holistic solutions to urban challenges.

Urban Labs might be temporary initiatives (such as working groups to solve specific challenges) or dedicated units within their host institutions. In this regard, there are examples of labs being set up not only within the municipal authorities, but also national governments, non-governmental organizations, research institutions or universities.

## Why, where, and how are Urban Labs applied?

Urban Labs are applied whenever current practices of urban planning deem inadequate to address new or persistent challenges, which can relate to the cross-cutting issues (climate change, integration and effective use of resources, gender equity) or specific sectors (energy, mobility, waste, cultural heritage, housing, or other).

Urban Labs have been set up worldwide (Latin America, Germany, Spain, the Netherlands, Sweden, etc.) and shaped by the local needs. Below we provide specific examples that outline:

- The scope of Urban Labs
- Institutional set up and funding mechanisms, and
- how Urban Labs created investment opportunities or supported policymaking.

## How can Urban Labs support regional development, cohesion, and infrastructure investment in Georgia?

Cities are seen as both the source and solution to today's economic, environmental, and social challenges, and Georgia is no exception. Urban areas are the engines of the economy and act as catalysts for creativity and innovation. But they are also places that greatly contribute to persistent problems, such as pollution, climate change, and inequality to name a few. Moreover, in Georgia, urban centers (those beyond the capital) are acting as anchor points for national policies and programmes related to both socio-economic development and infrastructure investments, that serve urban-rural

linkages and regional development at large. Improving the attractiveness of such centers is crucial to reduce population shrinkage and inequalities in living conditions.

Consequently, to balance the growth and turn medium and small-sized cities into better places to live, Urban Labs' participatory, place-based, bottom-up approach helps local governments to better understand what exactly is needed and to secure opportunities for the adequate infrastructure investments.

## Urban Labs – global examples

### *GIZ-supported Urban Labs in Ecuador<sup>1</sup>*



Rapid urbanization of Ecuador has led to social inequality, high resource consumption and increasing greenhouse gas emissions. To respond to those challenges, GIZ (Gesellschaft für Internationale Zusammenarbeit) has been supporting national and local government institutions in implement measurable contributions to Ecuador's 2036 agenda for sustainable urban development (AHSE) and to mitigate climate change in urban areas.

Thanks to the project, six medium-sized cities have established Urban Labs to tackle the local urban issues but also support national urban development reform. The Urban Labs are set up as temporary working groups, which bring together the local government, academia, non-for-profit organizations and affected communities. For the topics that must be supported by the national decision-makers, the labs also include national agencies as members.

The working modalities of the labs developed over time. Some of the achievements of the programme were applying participatory planning practices to ensure that local stakeholders actively shape their urban environment. Additionally, the municipalities have developed an acute understanding of the importance of innovative solutions. One such example is one of the project municipalities tasking its Urban Lab to search for the solution to stop food oil pollution, which clogs sewage system and pollutes rivers.

The academic sector plays crucial role in developing the Urban Labs in Ecuador. The main reason is the lack of technical knowledge at the local level. Consequently, many Urban Lab projects, especially those that test engineering solutions, were developed by academic research institutions.

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<sup>1</sup> Source: [Promoting climate-friendly urban development in intermediate cities - giz.de](https://www.giz.de/en/about-giz/projects/2017/promoting-climate-friendly-urban-development-in-intermediate-cities)

The Urban Labs in Ecuador produce several types of outputs, including a tool for the municipalities to calculate climate-related risks that is being used by other municipalities as well. During the project municipal staff were capacitated in preparing applications that would increase their access to green finance.

## Mobility City Campus in Rotterdam<sup>2</sup>



In 2019, the city of Rotterdam launched the Mobility City Campus with the goal to bring together into one specific location all the stakeholders from the mobility sector to test some of the most cutting-edge innovation that will shape the way people and cargo move for the next decades to come. To do so, municipality partnered with the Finnish investment company Avanto Ventures.

“Over fifty pilot projects in the mobility field are currently taking place within the Municipality of

Rotterdam, from autonomous pilot projects at Rotterdam Airport to a hydrogen production facility at the Port of Rotterdam. Rotterdam also conducted the ‘MaaS’ (Mobility as a Service) transportation experiment, during which one hundred Rotterdam residents were selected to use discounted public transport, ride sharing and other transportation services for six months while leaving their car at home as much as possible.”

## CITYLAB010 Rotterdam<sup>3</sup>



Citylab010 is a support programme for innovative projects that make a social contribution to Rotterdam. CityLab010 does this with consultants with substantive expertise from the municipality of Rotterdam, a number of social partners, a City Jury with a heart for the city and knowledge and an annual budget of 1 million euros. CityLab2015 has supported more than 200 innovative initiatives that make Rotterdam more fun, beautiful, greener, more social, safer and stronger with more than 30 million euros. The participatory nature of this lab is ensured through an open call for ideas, where eligible innovators can take part. In 2023, one of the winning

initiative - Oxious Talent Factory (OTF) - is focusing on a double mission: to reduce the textile waste in the Netherlands and to employ a woman receiving welfare aid.

<sup>2</sup> Source: [Rotterdam as living lab for smart future mobility • Rotterdam. Make it Happen. \(rotterdammakeithappen.nl\)](https://rotterdammakeithappen.nl). Photo: [Mobility - Rotterdam Innovation City](#)

<sup>3</sup> Source: [CityLab010 - From thinking to doing](#), [CityLab010 - From thinking to doing](#)

## Innovation City Bottrop<sup>4</sup>

The former mining town of Bottrop, Germany has undergone an amazing transformation. In ten years, the former coal town, which as of 2016 had the lowest gross domestic product per capita of all independent cities in Germany and was struggling with deindustrialization and unemployment, has set up a new image as an Innovation City.

In 2009 a business alliance in the Ruhr region (Initiativkreis Ruhr Ltd) launched the Innovation City competition which Bottrop won against 16 competitors. The alliance established the Innovation City Management GmbH (ICM) as public-private agency for the project management. ICM is supported by five shareholders: GREENZERO Ltd as the main shareholder, Initiativkreis Ruhr Ltd, the city of Bottrop, and two private enterprises.

Model districts for climate protection and energy-efficient building refurbishment between 2010 and 2020 include inner city areas, shopping, industrial, and residential areas, and a sewage treatment plant. The "energy turnaround from below" has been a key strategy. Education and activation were combined with technical and financial support for modernization measures.

Right at the beginning, the agency ICM set up a round table as a central instrument. Initially on a weekly basis the city administration, real estate industry, energy suppliers, commerce, citizens, and science quickly developed ideas and implemented them efficiently. The ICM's role was to bring the actors together, mediate and bundle ideas.

Looking back, what Bottrop has achieved in ten years is amazing: Between 2010 and 2020 the model district halved its CO<sub>2</sub> emissions. More than 300 ideas have been implemented together with various actors. A small selection: Street lighting is being converted to LED, lampposts are being converted to charging stations for e-cars and e-bikes, bike paths are being expanded, and street cleaning is done with rainwater. The Green Bottrop Campaign encourages green roofs and facades as well as near-natural front garden design. The local economy is getting involved, and residents of the pilot area can buy energy-saving products at 15 percent off at home improvement stores with an "energy-saving card". The city's largest sewage treatment plant, which in 2009 still had the energy needs of 30,000 residents, sets out to produce energy for 30,000 residents. It no longer dries sewage sludge with coke but with solar energy, feeds the waste heat from sewage sludge incineration into the heating network and saves 60,000 tons of CO<sub>2</sub> per year.

And then there's the transformation of the existing buildings: A total of 733 million euros is being invested in refurbishment and retrofitting, two-thirds of which from the private sector and one-third from the public sector. Between 2010 and 2020, 36.6 percent of residential buildings in the pilot area underwent energy modernization. The annual modernization rate amounts to 3.3 percent p.a. - and has remained similarly high after 2020. A solar campaign was launched, which will result in Bottrop topping the list of Ruhr area cities by a wide margin at the end of 2022 with 1,759 photovoltaic (PV) systems and 314 Wp of nominal PV power generated per capita. Today, Bottrop produces around 35 million kWh of PV electricity per year, supplying a good 12,000 four-person households. There is no public building left without photovoltaics on the roof. All these measures generate jobs. In Bottrop alone, according to the Ruhr Research Institute for Innovation and Structural Policy e.V., the newly created jobs amount to 3,211 employee-years.

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<sup>4</sup> Sources: <https://www.boell.de/de/2023/09/12/erfolgreicher-klimaschutz-bottroper-modellstadtteil-halbiert-seinen-co2-ausstoss>  
<https://www.bottrop.de/innovationcity/index.php>  
<https://www.icm.de/gesellschafter/>

Currently, Bottrop is increasingly exploring alternatives for heat supply. The city has set itself a next goal: It wants to be climate-neutral by 2035.

ICM is systematically rolling out the experience gained in Bottrop. The basis for the roll-out is, on the one hand, the 1,300-page master plan for Bottrop and the "Innovation Manual," a strategic and conceptual guide for other municipalities with the procedures and findings from the Bottrop model. Since 2018, ICM has developed more than 120 new neighbourhood concepts, mostly financed by KfW's (a federal, government owned bank, on behalf of the state government for an additional 20 neighbourhoods in 17 Ruhr cities.

### *Programme on Experimental Housing and Urban Development (ExWoSt)*<sup>5</sup>

Funded by the German Ministry for Housing, Urban Development and Building, the ExWoSt is an applied research project focusing on climate change adaptation. One part of the project is "stress test for cities", which started in September 2022 in ten municipalities.

The project involves development of a data-based, interactive application for municipal practice. The application can model the stress scenarios so that the decision-makers can be prepared. Among other benefits such as a stronger weighting of risk prevention in municipal development strategies, it will support cities to obtain a more solid basis for budgetary or investment decisions.

### *The German Urban Development Support Programme (Städtebauförderung)*<sup>6</sup>

Funded by the German Ministry for Housing, Urban Development and Building, the Urban Development Support Programme is a key feature for many German towns, cities and communities and an important basis for the financing of urban renewal. In 2023, the federal budget of the programme was 790 million Euros.

The programme is based on five core features:

**Cooperative joint action by federal government, federal states, and municipalities:** The Federal Government and federal states agree on priority issues and use of Urban Development Support funding. The federal states direct the funding to the towns, cities, and communities, based on their specific urban development policy ideas, strategic approaches and local requirements. The municipalities keep their legally granted planning sovereignty, they plan their development, apply to the federal state for funding, then deliver the works.

**Integrated approach:** Municipalities choose a district for which they then develop an integrated urban development plan. This plan sets development goals which correspond to specific local needs to be delivered by a broad variety of stakeholders and includes all relevant urban development sectors.

**Adaptation to local needs:** With its comprehensive approach, the programme goes beyond merely investing in urban infrastructure. Its goal is delivering equality of living conditions despite the differing

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<sup>5</sup> Source: [https://www.klimastadtraum.de/DE/Forschungsfelder/KlimaExWoSt/klimaexwost\\_node.html](https://www.klimastadtraum.de/DE/Forschungsfelder/KlimaExWoSt/klimaexwost_node.html). Further information in German: <https://www.bbsr.bund.de/BBSR/DE/forschung/programme/exwost/jahr/2022/stresstest-staedte/01-start.html>.

<sup>6</sup> Further information in English: [https://www.staedtebaufoerderung.info/EN/home/home\\_node.html](https://www.staedtebaufoerderung.info/EN/home/home_node.html)  
[https://www.staedtebaufoerderung.info/SharedDocs/downloads/DE/ProgrammeVor2020/50\\_years\\_urban\\_development\\_support\\_programme.pdf;jsessionid=C56999858ECF9E90D53816E6BD81D7B5.live21322?\\_blob=publicationFile&v=2](https://www.staedtebaufoerderung.info/SharedDocs/downloads/DE/ProgrammeVor2020/50_years_urban_development_support_programme.pdf;jsessionid=C56999858ECF9E90D53816E6BD81D7B5.live21322?_blob=publicationFile&v=2)

starting conditions across the municipalities. It thus embraces the diverse range of social welfare-oriented, economical, demographical, and ecological challenges urban in the various contexts.

**Participatory working with the urban community:** Stakeholders from the local urban community, business, trade, cultural, educational, and various other sectors contribute to the development processes and individual projects. As well as being an economic motor - €1 of Urban Development Support funding generates an average €7 of private or public construction investment - the programme is thus also a point of identity-creation for the local population. It encourages democratic coexistence in neighbourhoods and can contribute to social stabilisation.

**Learning from monitoring and evaluation:** A key instrument is the monitoring of the districts receiving funding by the programme. Monitoring includes input and output data, indicators, and contextual information on municipal development to visualise what has been achieved and what changes have been seen in the urban space. Research projects are used to develop evidence-based foundations for future development of the programme. Evaluations make key contributions to the refinement of the programme and its real-world implementations. National Contact Points assist with communication and knowledge transfer.

## EU-wide initiatives<sup>7</sup>

Since 2006 the concept of the living lab has been recognized by the European Commission as a key tool for open innovation. Living labs have spread over Europe in various waves, first focusing on new ICT (Information & Communication Technologies) tools but later also extending to other fields, such as sustainable energy, healthcare, safety, and mobility. Nowadays, newspapers are full of news items on living labs, promoting networks of living labs recently created, and covering European projects that organize their activities within the living labs set-up. The present report illustrates that operational set up, local urban mobility strategies, as well as the goals of the main key stakeholders have led in practice to a large variety of urban mobility living labs in Europe.

## Urban Labs bring benefits. But what are the challenges they face?

While Urban Labs offer valuable opportunities for experimentation and innovation, they also face several challenges:

- Cities are incredibly complex with multiply interconnected systems. Understanding these complex systems, and then choosing which field or geographical areas are the most feasible for the intervention (politically, socially, and financially) is a significant challenge for urban labs.
- Securing sustainable funding can be difficult, especially for long-term initiatives. Despite its experimental nature, Urban Labs must aim for the best possible outcomes to meet the expectations of both government and affected populations.
- The broad applicability of the Urban Lab concept and the vast scope of long-term impacts can lead to unrealistic expectations. It is important to carefully design the interventions and inform all parties about the possible risks at the very beginning.

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<sup>7</sup> Source: [Living labs report published! - EIT Urban Mobility](#)



- Urban labs often need to navigate complex political and bureaucratic systems. Resistance to change and conflicting interests among different stakeholders can hinder progress.

## Urban Labs in Georgia

The Sustainable Urban Development (SUD) project in Georgia, in cooperation with the national government, supports Georgian municipalities in applying the Urban Lab approach to support the development of participatory, climate-oriented, and integrated urban development projects that are ready for financing.

The Urban Lab is established as a working group by the municipal city hall and supported by SUD 's regional adviser. The working group comprises municipal practitioners, independent technical experts (provided by SUD), and stakeholders. The Urban Lab's work is monitored by local and international academia to help decision-makers derive conclusions on what would improve integrated urban development in Georgia.

Moreover, the Urban Labs are advised by the national Urban Policy Innovation Group (UPIG), which is comprised of the Ministry of Environment Protection and Agriculture, the Ministry of Economy and Sustainable Development and chaired by the Ministry of Regional Development and Infrastructure. The group helps identifying the policies, sector technologies, planning and/or financing instruments to be tested within the Urban Labs alongside the local challenges.

Urban Labs in Georgian municipalities will explore and develop integrated projects in the areas of energy efficiency, mobility, public space, sustainable tourism, and waste management. Additionally, they will apply place-based approaches and prepare Neighborhood Development Plans.

Specifically, Urban Laboratories will focus on:

- Helping municipalities develop their technical, managerial, administrative, and overall urban planning capacities to increase feasibility of future project implementation.
- Assisting cities in establishing the local practice of participatory planning in cooperation with private and civil society actors with special focus on gender sensitivity and gender responsiveness.
- Providing a platform for bottom-up communication and help cities share their identified problems or project ideas with national government entities. The process will include evaluation and reporting on systemic challenges to support relevant policy and legislative reforms at the local and national level.
- Providing seed funding for small-scale exemplary projects to help identify how participatory, climate oriented and integrated planning approaches can be applied to the physical world.
- Linking projects to financing.

The Urban Labs aim to make urban investment projects sustainable and bring them to financing and implementation. The quality of the investment projects regarding climate orientation, participation and urban integration will be increased.