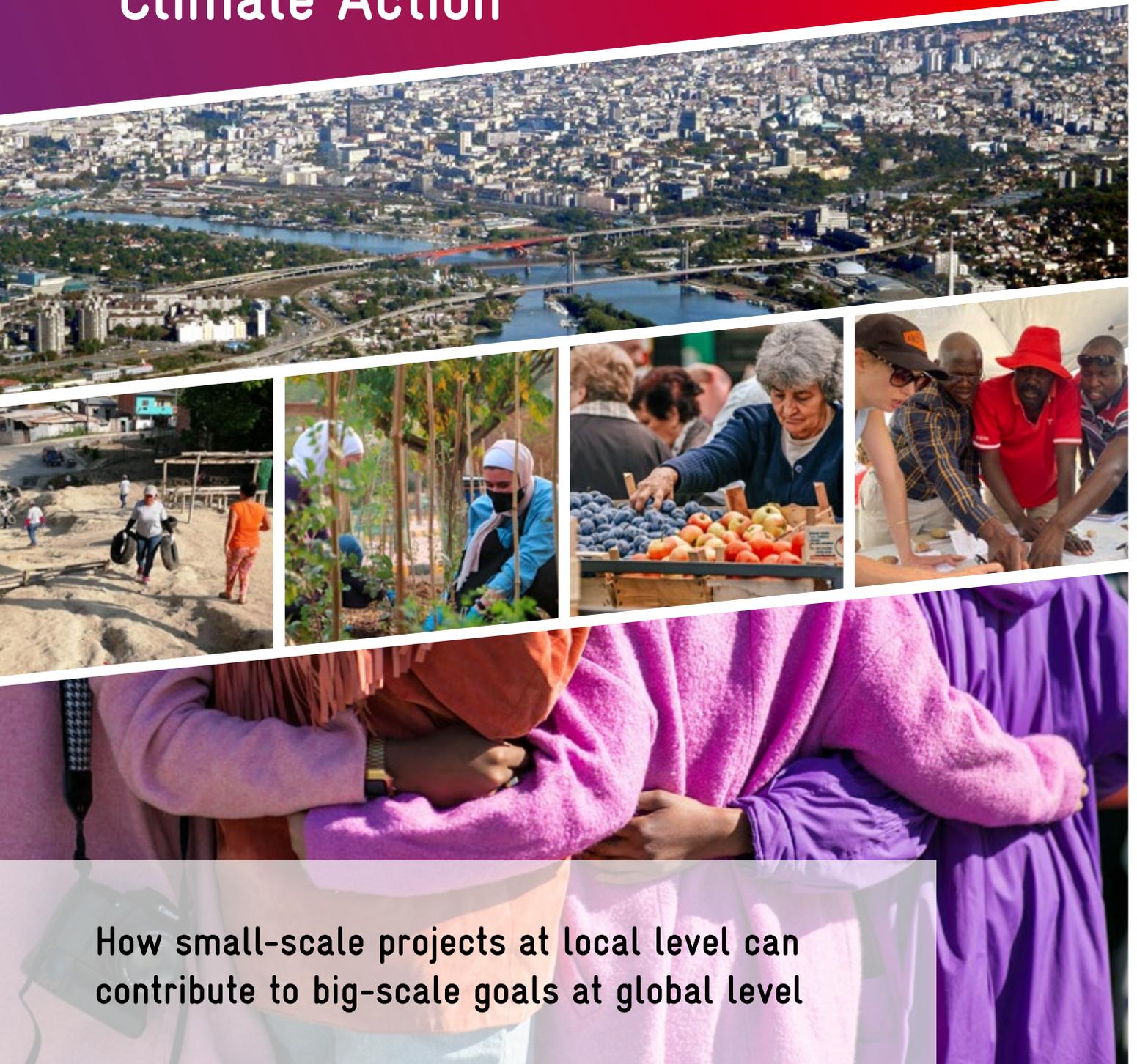


Cities Challenge: 2030 Agenda meets Urban Climate Action



How small-scale projects at local level can
contribute to big-scale goals at global level

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and Development



Cities **CHALLENGE**



2030 Agenda meets Urban Climate Action!

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Implementing the 2030 Agenda – Cities Matter!



This video shows the possibilities of an integrated approach for the successful implementation of 2030 Agenda in cities and urban regions. How global urbanisation is shaped and managed is one of our major challenges today. Sustainable cities and climate-friendly resilient neighbourhoods are our future. That's why we have to act now – Cities Matter!



Preface

CARMEN VOGT, HEAD OF GIZ SECTION CITIES

Urbanisation is a megatrend that has a formative and significant effect on the world economy and society. It influences people's quality of life, the future of democracy, the global consumption of resources and energy, and therefore the earth's future.

Experts project that **up to 70 percent of the global population will live in cities by 2050**. Future urban growth will almost exclusively take place in developing countries, where medium-size cities in particular will grow rapidly. This growth comes with a host of challenges and opportunities, such as adapting to climate change in the urban environment, managing resources sustainably, procuring adequate shelter and decent job opportunities for all, exploring options for digital solutions and ensuring food security for a growing urban population.

The 2030 Agenda for Sustainable Development recognises the importance of cities by explicitly referring to sustainable cities and human settlements in Sustainable Development Goal 11 (SDG 11). Furthermore, **cities are becoming the pivotal point for the implementation of two thirds of all 17 Sustainable Development Goals**. This means that local governments and communities will be key for transforming our global future from the ground up.

The **Sector Project 'Integrated Implementation of the 2030 Agenda in Cities and City-Regions'**, implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), has promoted and carried out **action-oriented model projects with cities and city-regions in collaboration with German development cooperation programmes worldwide since 2018**. These projects have focused on the diverse social, economic and ecological challenges within urban areas, such as metropolitan governance, urban-rural linkages, city-region food systems, urban resources management and climate change as well as digitalisation and regional economic development. From September 2021, the Sector Project's targets and activities will continue in the **new Sector Project 'Cities'**, which will also build on experiences

and activities of the prior Sector Project 'Urbanisation, Municipal and Urban Development'.

This ePaper gives deep insights into the Sector Project's ideas competition 'CitiesChallenge: 2030 Agenda meets Urban Climate Action', which aimed at **identifying local urban solutions**. In 2019, project managers in various partner countries of German development cooperation proposed ideas for implementing the 2030 Agenda and the Paris Climate Agreement in cities together with local partners. Four ideas were selected and tested in so-called Urban Living Labs which ran between 2019 and 2021. The success of the first ideas competition resulted in a relaunch of the format in 2021 with the motto 'Cities CHALLENGE 2.0: Building Vibrant and Resilient Neighbourhoods'.

This ePaper offers **recommendations to practitioners interested in the methods used by the Urban Living Labs and their results**. They show the potential of integrated approaches in the context of urban development for a more sustainable social, economic and ecological future.

We would like to encourage policy-makers, practitioners and academics to engage in a critical and fruitful discussion about the ePaper and the CitiesChallenge 2030!



Introduction

Cities are key to sustainable development and climate protection. Most of today's challenges play out in cities: health and economic development, participation, social mobility and cultural development. At the same time, **cities both cause and suffer from climate change**, accounting for almost 70 percent of global CO₂ emissions. These climate-damaging emissions come from urban production and consumption patterns that burden the environment and our ecosystems. Simultaneously, climate change poses a particular threat to cities as evidenced by rising sea levels and health hazards such as poor air quality. It is the urban poor who are particularly hard-hit by this – 800 million people who live in vulnerable urban environments today – a figure that is projected to rise to 2 billion by 2050.

One of our key challenges is to **ensure access to safe housing, sustainable basic services and social, economic and political participation for urban residents all over the world**. The importance of this challenge has been recognized by the global community in Agenda 2030, and Sustainable Development Goal 11 (SDG 11) in particular, which focuses on the importance of cities and local actors in implementing the global development and climate agendas through 'inclusive, safe, resilient and sustainable cities and human settlements'.

Studies show that **two thirds of all Sustainable Development Goals can only be achieved in and with cities**. The implementation of the Paris Climate Agreement is inconceivable without cities, who are the main CO₂ producers. Many cities, in alliances such as the [C40 Cities Climate Leadership Group](#) and the [Cities Climate Finance Leadership Alliance](#), have committed to ambitious climate targets and, together with other sub-national levels of government, are driving the implementation of climate mitigation and adaptation measures in combination with urban development.

But **what does a climate-friendly, inclusive, safe, resilient and sustainable city look like in practice?** In 2019, GIZ's

CitiesChallenge 2030 ideas competition set out to showcase and support examples for this all over the world. More than 30 projects replied to the calls for application. GIZ and BMZ selected four winning projects to be Urban Living Labs:

- In **Portoviejo, Ecuador**, women in a poor peri-urban settlement acted as guardians to support the vulnerable and the sick, working together with the municipal disaster management department. With the help of students and experts from universities and professional organisations, they managed to secure paths and public spaces from landslides.
- In **Jordan's capital Amman**, an NGO created micro-forests in high-density, precarious neighbourhoods. This triggered cross-sectoral cooperation between stakeholders, who together tested novel planting methods to improve air quality, combat heat islands and create rainwater storage.
- In **Windhoek, Namibia**, slum dwellers on the outskirts of the city created a neighbourhood park that invites people to stay and play while protecting their homes from seasonal flooding. They also planned the future development of their own settlement through a participatory process, supported by the municipality.
- In the **Serbian capital Belgrade**, food service operators and digital start-ups in the Serbian capital Belgrade saved food from being destroyed. Instead, they made it available to families in need while improving urban food security and reducing the burden on landfills.

These four Urban Living Labs show some of the many ways that interventions in cities bring local governments, experts, communities and entrepreneurs together. By **working together with local partners**, they improved the resilience and quality of life for vulnerable groups, ensured access to public services, used resources more sustainably, and promoted climate change mitigation and adaptation.





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“The CitiesChallenge 2030 has not only proven the importance of integrated approaches for sustainable urban development, but also the potential of innovative modalities and co-creation for the implementation of global agendas and specifically the SDGs. The Cities Challenge also demonstrates the importance of dialogue between the global and regional technical cooperation areas for innovative, needs-based and even more effective policy development. I am looking forward to the upcoming urban innovations being developed in the Cities CHALLENGE 2.0!”

Elke Siehl, Head of GIZ Department ‘Global and Sectoral Programmes (GloBe)’

The CitiesChallenge 2030 pursued these four central goals:

- **Mainstreaming:** to effectively disseminate guiding principles from BMZ on sustainable urban development and make them visible in concrete terms.
- **Reality Check:** to match approaches from policy advice with partner needs and priorities on the ground.
- **Experimentation:** to test tools and methodological approaches for implementation, and put the experiential knowledge of bilateral projects and partners to good use.
- **Portfolio development:** to further develop technical and methodological approaches for needs-based, implementable and transformative technical cooperation.

To fulfil these goals, the project aimed to establish a **dialogue between GIZ and BMZ headquarters, respective country programmes and their partners abroad**. This highlighted the potential for innovation and the impact of urban development approaches for the implementation of global development and climate agendas.

GIZ also intends to contribute to making **German development cooperation oriented towards needs, implementation and impact**. In addition, urban transformation is a key theme for technical and financial assistance in German development cooperation. It is strongly connected to sectoral priorities such

as decentralisation, water and sanitation, waste management and circular economy or mobility. More recently, **the Reform Strategy ‘BMZ 2030’ has recognised urban development as a central focus for German development cooperation**.

To meet these priorities, the four example Urban Living Labs show the potential of urban initiatives that cooperate with multilateral and bilateral partners to develop and test new approaches for implementing international agendas. The intersection of climate change and urban development in particular holds special potential for accelerating the implementation of global climate and development agendas and boosting the necessary impacts. Due to their **spatial integration, potential for cross-sectoral cooperation, human resources and urban governance**, cities provide a rich playground to create these synergies.

Despite delays due to the COVID-19 pandemic, by 2022 the four Urban Living Labs will have each been implemented in their own unique ways. What they all have in common, however, is the **small-scale intervention at neighbourhood level in the context of multi-actor partnerships**. The approach, methods and results of the Urban Living Labs are detailed in this ePaper and we hope they will inspire others to follow suit.



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CitiesChallenge 2030 for Urban Climate Action



PUTTING THE SDGS INTO PRACTICE

The international community is constantly searching for **solutions to reach development and sustainability goals**. This endeavour is anchored in the 2030 Agenda and its 17 Sustainable Development Goals (SDGs). Urban development is key for implementing the 2030 Agenda and closely related goals for urban climate action. Through its ideas competition ‘CitiesChallenge 2030’, GIZ contributed to finding solutions for climate-friendly urban development by mobilising creative

potential and looking for expert knowledge, ideas and needs from its partners.

International frameworks such as the 2030 Agenda, the New Urban Agenda, the Paris Agreement and the Sendai Framework for Disaster Risk Reduction provide global goals for sustainable and climate-friendly urban development. **But how to break them down at the national or local level?**



Learning at the local level

The diverse needs and interests of different stakeholder groups are best understood and applied at the local level. At the same time, there are **countless opportunities for collaboration at the neighbourhood level** that help to initiate positive transformations. This makes cities and neighbourhoods ideal environments to experiment with sustainable solutions that can flourish in the long-term.

Cities play a crucial role not only in implementing SDG 11, which is dedicated directly to cities, but also SDG 1 on poverty, SDG 5 on gender equality, SDG 10 on inequality, SDG 12 on sustainable production and consumption patterns and SDG 13 on climate action – among others – are all **closely related to urban development**. In fact, two thirds of the SDGs’ subgoals can only be achieved with or within cities. Urban stakeholders such as municipal governments, private sector actors, civil society groups, as well as research and educational institutions often pioneer the implementation of these goals.

Another reason for working on these goals at the local level is that cities can **act promptly, flexibly and even in an anticipatory manner**. Cities stand for complex interaction of people, closely interwoven economic activities and a high density of

services and infrastructures. Urban dynamics often transcend spatial and administrative boundaries and have an impact on the rural hinterland and neighbouring communities. As the COVID-19 pandemic has shown, these features allow for swift action. With their diverse stakeholders, cities are effectively laboratories for the innovative implementation of the SDGs at the local level.

The GIZ project ‘Integrated Implementation of the 2030 Agenda in Cities and City Regions’, or ‘CityRegions 2030’ in short, launched the CitiesChallenge 2030 in 2019 to identify local urban solutions. It is generously funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).





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Guiding principles of the CitiesChallenge 2030

Interconnected nature of the 17 SDGs

Interconnected nature of the 17 SDGs in the 2030 Agenda, particularly in cities, where productive synergies between correlated goals are easier to activate.

Integrated urban development

Integrated urban development predicts greater impact as relevant actors from sectors such as mobility, waste and energy work closely together to find sustainable, effective and climate-friendly solutions.

Leave No One Behind

This 'central, transformative promise of the 2030 Agenda and its SDGs' is a fundamental commitment to the global community, making the development goals socially just and inclusive.

Multi-actor partnerships

Multi-actor partnerships invite a wide range of actors to work together towards achieving the SDGs bringing together multiple wisdom, capacities and resources.



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BRINGING CITIESCHALLENGE 2030 TO LIFE

The vision of the CitiesChallenge 2030 was to invite urban projects in partner countries of German development cooperation to propose ideas for implementing the SDGs and climate protection in cities together with local partners. These ideas should be tested in so-called urban living labs and have the potential to be replicated at higher scales. Through concrete entry points, such as urban infrastructure, public spaces, housing, food security or nature-based solutions, different stakeholders could be addressed. Partnerships with German development actors could be established to jointly tackle urban challenges in the field of urban planning, municipal finance and governance.

Therefore, the call for applications was addressed to **GIZ programmes in all regions of the world** that work on urban issues. According to CityRegions 2030, this was the case if these three criteria are met: addressing the population of urban settlements; working with partners with a direct mandate or responsibility in the field of urban development; working on national, regional and local projects that promote the development of urban areas. Since these projects were already embedded in existing structures, they offer potential for future upscaling. Additionally, they **ensure local ownership** and are valuable learning opportunities for GIZ.



What are Urban Living Labs?

By funding four different interventions, the CitiesChallenge 2030 aims to support **innovative approaches for transformative action at the local level**. These urban living labs promote participatory and multidisciplinary interventions organising workshops, activities for awarenessraising and small construction measures that foster decent, sustainable and safe neighbourhoods. Through these projects, GIZ and BMZ aim to enrich dialogue with development cooperation partners on the guiding principles of German development cooperation and to **match these principles with real life projects**. This learning curve will allow to illustrate the added value of urban strategies for SDG implementation and to develop tools and new methodological approaches.

Topics for the CitiesChallenge 2030: Sustainable Development and Climate Agenda hand in hand

GIZ and BMZ issued a **call for proposals** aimed at specific topics and listing a selection of countries. These were invited to submit their innovative ideas for the CitiesChallenge 2030, with a **total funding of 400,000 euros**. The importance of climate action, as outlined in the Paris Agreement, and the interconnectedness of climate change with the SDGs in an urban context were key issues for the CitiesChallenge 2030. In the climate community, development goals are often considered as a co-benefit – with this ideas competition, GIZ and BMZ aimed to showcase that they can go hand in hand.

The 2030 Agenda and the Paris Climate Agreement have complementary agendas. While the 2030 Agenda brings in social aspects and highlights the interdependencies of the dimensions of sustainability, the Paris Climate Agreement focuses on climate change as the central global challenge facing humanity.

As vulnerable urban populations are increasingly affected by the negative impacts of climate change, it is crucial to increase their resilience through climate action, while also stressing the importance of tackling social issues such as inequality, poverty, wellbeing and adequate livelihoods. The **interconnectedness of the SDGs and the Paris Agreement** offers a potential of joint urban development and urban climate action with a network of sectors and actors. Therefore, the CitiesChallenge 2030 promoted an **integrated approach** as a necessary response to this complex challenge.

Additionally, the CitiesChallenge 2030 focused on the principle of Leaving No One Behind. Many barriers people face in accessing services, resources and equal opportunities are not simply a matter of fate or a lack of availability of resources, but rather the result of laws, policies and social practices that reinforce inequalities and lead to exclusion. The **multi-stakeholder approach**, which also includes the participation of beneficiaries, ensured that many different needs and potential were taken into account and addressed jointly and adequately. Through this, the CitiesChallenge 2030 aimed to find effective solutions leading to a more just and inclusive urban development, as well as to increased climate resilience and adaptation in cities.

Project proposals that promote gender equality were particularly eligible, although this was not a hard criterion. Here, GIZ and BMZ sought to emphasise the **role of empowered women as active shapers of sustainable development and as change agents in societies**. In urban development in particular, women often have a unique function in their communities, making them strategic partners for climate action, social equality, and the Leave No One Behind principle. Urban living labs **showing the contribution of digital solutions in implementing the SDGs** were also very welcome. Rather than simply a mode of delivery, winning projects would instead use digital solutions as a means to support inter alia participation of vulnerable population, access to municipal services, risk management as well as resource efficiency in urban development.





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What were the selection criteria?

- 1 SDG relevance in an urban context with a focus on indivisibility and Leave No One Behind.
- 2 Climate relevance with a focus on resilience and adaptation.
- 3 Local implementation with partners of GIZ and BMZ for a multi-stakeholder approach.
- 4 Potential for being replicated and scaled up within programmes of German development cooperation and their counterparts.

Additional eligibility criteria

-  Use of digital tools
-  Gender equality

Countries participating in the CitiesChallenge 2030

With these topics in mind, CityRegions 2030 invited **GIZ programmes considered urban** in partner countries listed as a **priority for German development cooperation**. Recommendations of BMZ's and GIZ's regional divisions regarding the relevance and potential of urban development in the respective portfolio were considered. These programmes offered a variety of sectoral topics as entry points for the CitiesChallenge 2030, such as decentralisation, good governance, environment, energy or peacekeeping and huge opportunities to experiment with integrated approaches with the support of existing experts in the field.

The goal of the preselection was threefold: First, GIZ wanted to ensure that the proposals were embedded in ongoing processes, partnerships, programmes and administrative structures in order to increase **viability**. Second, GIZ's partners in preselected countries would be able to express local needs, **expertise** and ideas, therefore building on their existing programmes. Third, cooperation with existing stakeholders could ensure the replication of projects in the spirit of **sustainability**.

As a result, **19 countries were preselected** in the call for proposals. These included countries throughout Latin America, Sub-Saharan Africa, the Middle East and North Africa, as well as Eastern Europe and Asia-Pacific.



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SELECTION OF URBAN LIVING LABS

GIZ received a total of **32 applications** from 13 of the 19 selected countries ([→ Go to world map](#)). Applications came from Bolivia, Brazil, Ecuador, Egypt, India, Jordan, Namibia, Mexico, Peru, Serbia, Tunisia, Ukraine and Vietnam. Topics ranged from public space alleys, eco-yards, community gardens, heat resilience and energy efficiency to urban bicycle rental networks and walkable cities. Most applications centred on vulnerable communities and migration aspects. This **broad range of great ideas** showed that the CitiesChallenge 2030 addressed an important need for programmes and partners to express the relevance and potential of urban development.

For **the selection of four model projects** CityRegions 2030 employed a **multi-step selection process** with the following goals:

1

To evaluate the application based on the formal eligibility criteria in the call for proposals, as well as to evaluate them in terms of coherence, viability and persuasiveness.

2

To assess the projects' strategic potential for the development of topics and portfolios in German development cooperation.

3

To allow for the closest possible coordination between GIZ and BMZ units in order to meet expectations with regard to country strategies, funding priorities and upcoming review processes.

Throughout the selection process, CityRegions 2030 used a **scoring and ranking methodology**. The process was closely accompanied by GIZ's sectoral and regional units. The final decision was made by BMZ's sectoral and regional divisions to ensure coherence with ongoing country programmes, sector priorities and country strategies. Overall, this guaranteed **political and technical coherence**.

What were the selection steps?



2-step technical appraisal: CityRegions 2030 made an initial selection, which was followed by a technical assessment of an internal GIZ jury¹, and included the consultation of country managers. The result was a shortlist with a ranking.



Final selection: The BMZ Division for Urban Development² made the final selection of four projects in coordination with BMZ's country units.





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The four winning projects in Ecuador, Jordan, Namibia and Serbia were convincing in very different ways:

- The project in **Ecuador** aimed to enhance local resilience and simultaneously improve the quality of public spaces by empowering female leaders of the community organisation 'Guardians of the Hills' in San Pablo, Portoviejo.
- The 'Urban Micro Lungs' project in **Jordan** focused on improving living conditions in dense, disadvantaged urban areas in Amman by creating small, densely planted pieces of woodland that restore urban ecosystems.
- In the **Namibian** settlement of Onyika, the goal was to implement a participatory and climate-sensitive urban

planning process to support resilient settlement development and to raise climate risk awareness.

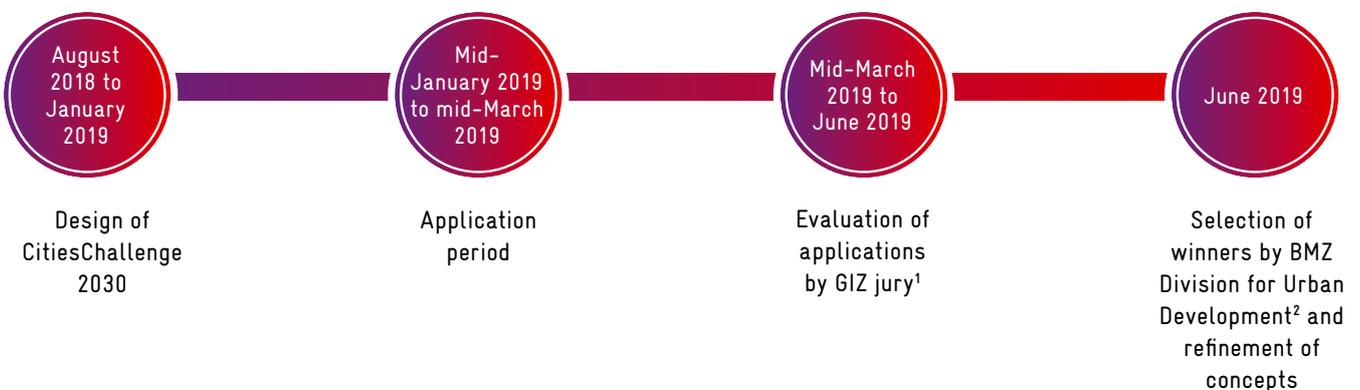
- The 'Food Shifters' project in **Serbia** focused on the reduction of landfilling and emissions from urban food waste in Belgrade by improving operations of small and medium enterprises with a digital solution.

The four chosen projects showed a **balanced regional distribution, and a variation of approaches to climate-friendly and integrated urban development.**

[→ Go to world map](#)

Winning projects met the **formal eligibility criteria**, such as the exclusion of double financing and a one-year timeline, among others. Special consideration was given to the list of **selection criteria**, as well as to the sustainability of projects, their feasibility both financially and in terms of their time-frame, and their emphasis on the CitiesChallenge 2030's guiding principles.

Project timeline



¹ The internal GIZ jury included representatives such as the GIZ Sector Department – Competence Centre Democracy, Policy Dialogue, Urban Development; the GIZ Sector Project 2030 Agenda; the GIZ Sector Project Urbanisation, Municipal and Urban Development; the GIZ Sector Project Sustainable Mobility; the GIZ Sector Project Promoting Gender Equality; the GIZ Sector Project Reducing Poverty and Inequality; and the GIZ Project Connective Cities

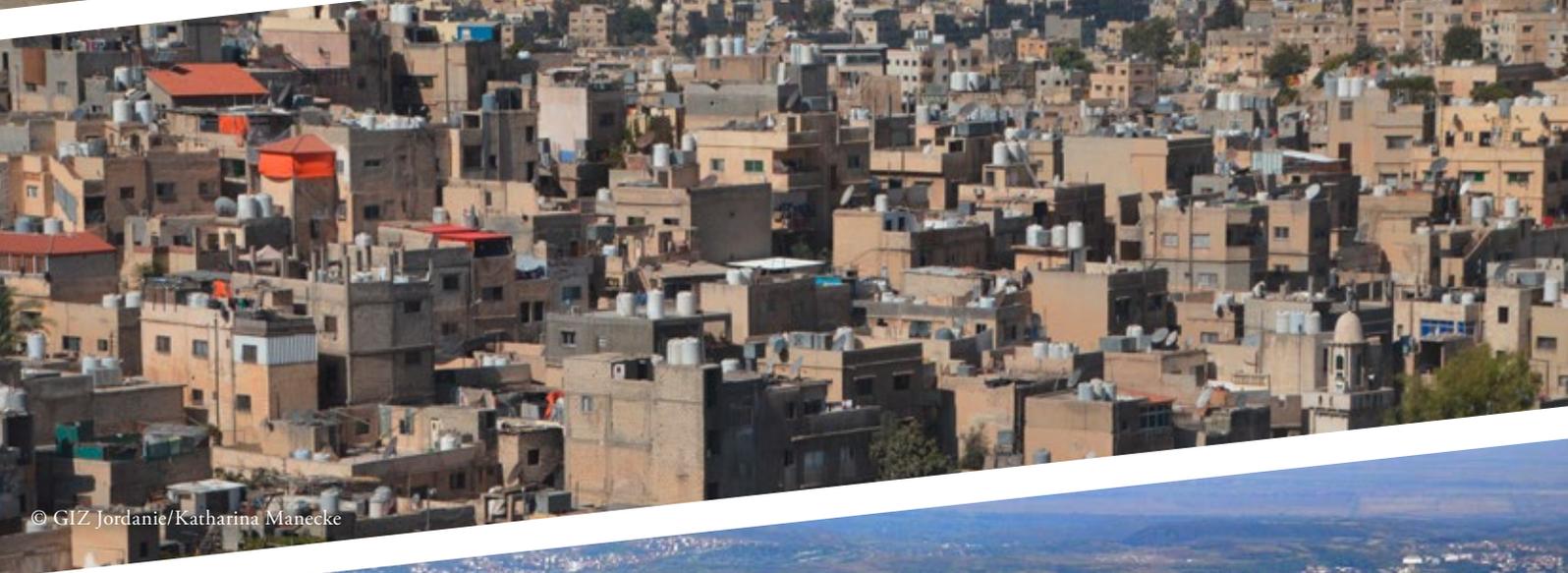
² Division 423: Environmental policy, urban development, mobility, circular economy, marine conservation



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The Four Urban Living Labs





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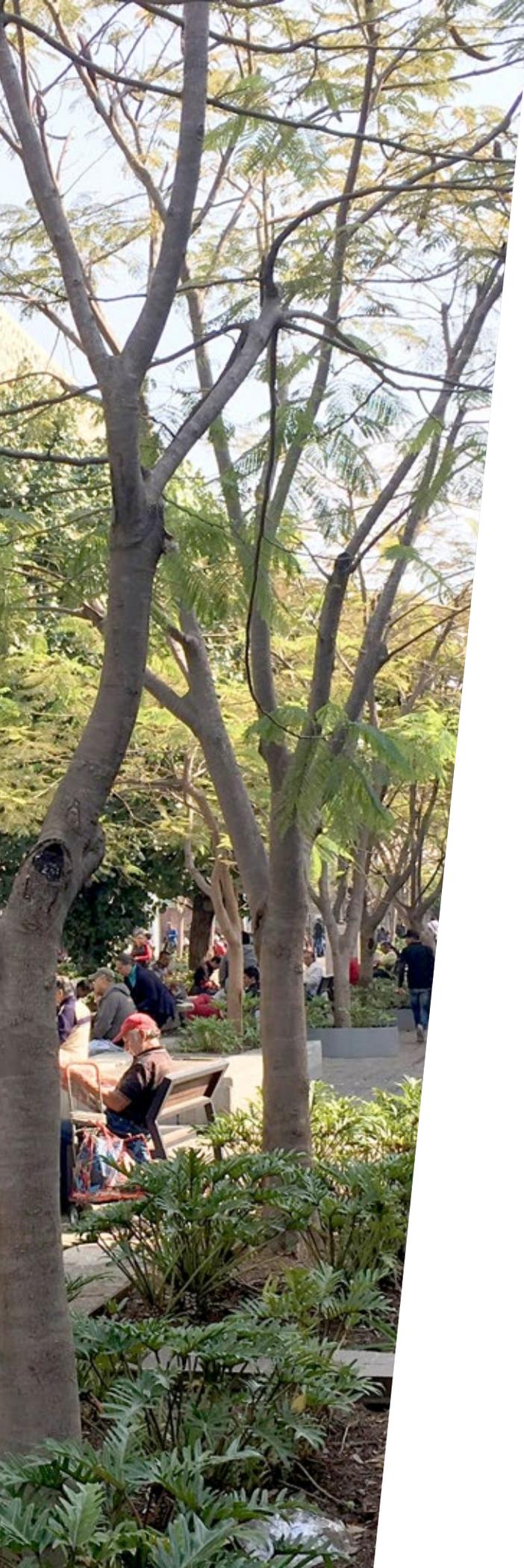
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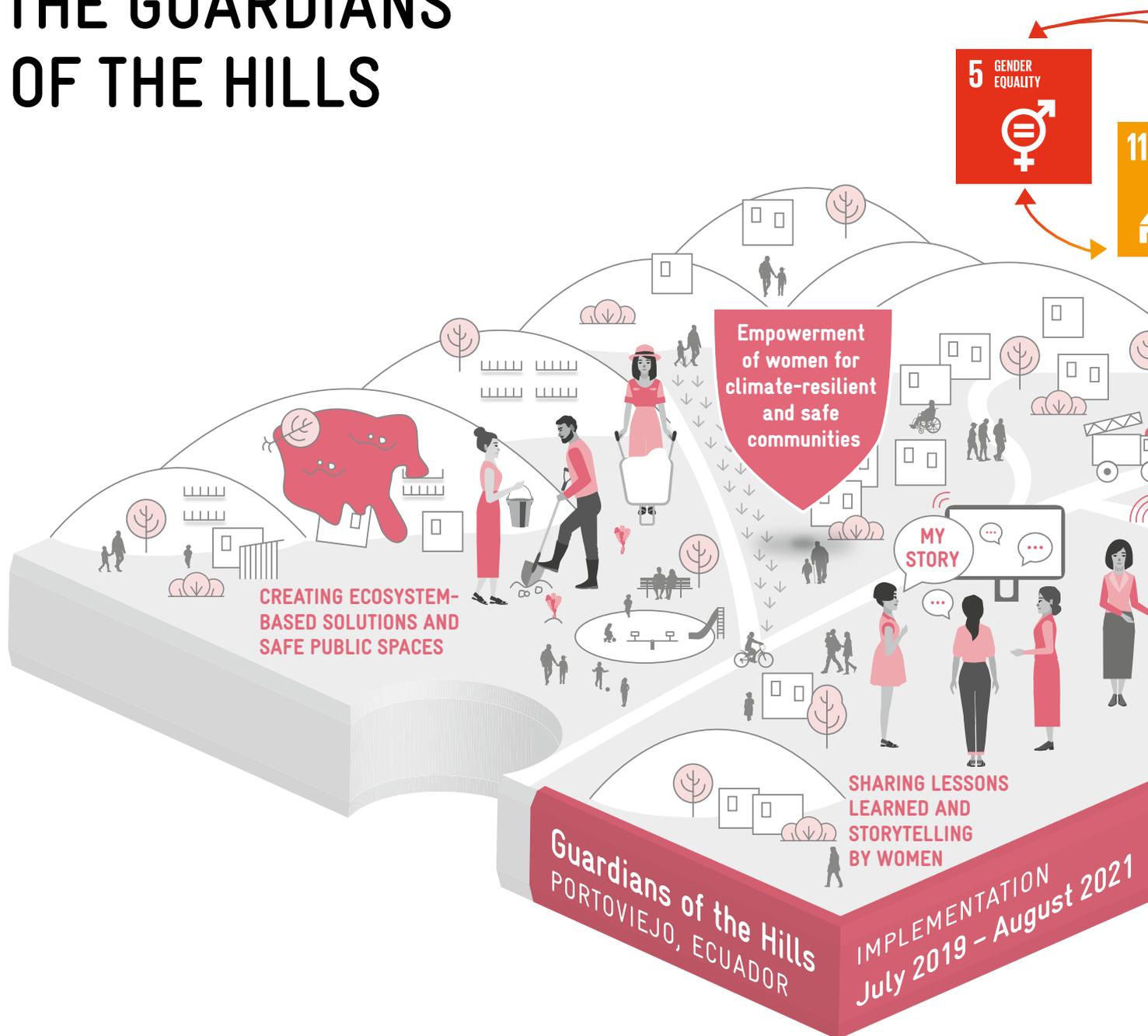
TAKING CLIMATE ACTION IN CITIES

The CitiesChallenge 2030 ideas competition is aimed at spotlighting local initiatives that demonstrate the added value of integrated approaches in urban development and planning. These initiatives serve as laboratories or Urban Living Labs. Based on the interconnectedness of the 2030 Agenda, the challenge also aims to bring together different sectors and actors to contribute to the achievement of the Sustainable Development Goals (SDGs).

As part of the CitiesChallenge 2030, four Urban Living Labs were selected in Ecuador, Jordan, Namibia and Serbia. Together, they show how innovative approaches can be successfully tested on a small scale and can contribute to the vision of a sustainable city. Through selected entry points, such as urban infrastructure, housing, food security, nature-based solutions, municipal financing, urban planning and governance, the Urban Living Labs can support different types of stakeholders and develop partnerships and common goals.

While the local situation and starting point may be different for each Urban Living Lab, what they all have in common is that the local population benefits directly from climate mitigation or adaptation measures. This strengthens the resilience of vulnerable groups and ultimately improves their living conditions. To achieve this goal, all four Urban Living Labs are united by the shared aspiration of cooperation for sustainable development. And as prototypes, they also have the potential to expand and be replicated in other local contexts. Through storytelling, their learning experiences therefore serve as valuable examples of urban solutions and strategies.

ECUADOR: THE GUARDIANS OF THE HILLS



The CitiesChallenge 2030 Urban Living Lab ‘Guardians of the Hills’ **aims to increase the climate resilience of vulnerable neighbourhoods in Portoviejo** by strengthening female leaders as decision-makers for urban climate action. The Urban Living Lab’s vision is to make the San Pablo neighbourhood more resilient by providing safer and more liveable public spaces, for instance by implementing ecosystem-based adaptation measures designed through participatory methods. To complement this approach, the Urban Living Lab also promotes the formation

of risk and emergency committees, the participatory design of a community risk management system and awareness-raising for gender-based violence prevention.

As part of this vision, the Urban Living Lab successfully implemented its idea to **integrate public spaces into the natural features of the hills** to make the slopes more resilient to rainfall. Yet the scope of the Urban Living Lab has expanded further as a result of the COVID-19 pandemic. A stronger focus was placed on preventing violence against women, an issue





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WHO

Guardians of the Hills, Parish Committee of San Pablo, Portoviejo Municipality, Association of Risk Management Professionals of Ecuador, Academic Network for Urban Sustainable Development.

WHAT

Guardians of the Hills is an Urban Living Lab aimed at increasing climate resilience of vulnerable neighbourhoods in Portoviejo.

WHEN

July 2019 – August 2021

WHERE

Portoviejo, Ecuador

WHY

Female leaders or 'Guardians' organise and change their neighbourhood by appropriating public space and making it healthier, greener, safer and more secure through a community-based disaster management and pandemic monitoring, as part of the municipal risk management system.

GERMAN DEVELOPMENT COOPERATION PARTNERS

[Intermediate Sustainable Cities Programme](#), [CityRegions 2030](#), [Programme Promoting Gender Equality and Women's Rights](#).

BUDGET

93,000 euros initial budget
216,900 euros after COVID-19 pandemic extension

which was exacerbated during the pandemic. The alert system and emergency committees for landslides were also mobilised, serving beyond their remit to update the population on the spread of the virus and provide humanitarian aid. Ultimately, the Urban Living Lab Guardians of the Hills has gone beyond its scope of social and territorial transformation by **conducting additional, COVID-19 related activities**. Its focus on Leaving No One Behind has also been strengthened through these challenges.



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Establishing
a community
alert System

THE URBAN LIVING LAB: APPROACHES, ACTIVITIES, ACHIEVEMENTS

Creating the Urban Living Lab

The San Pablo neighbourhood, home to around 12,000 people, is located in the hills of Portoviejo, the capital of the coastal province of Manabí in Ecuador. Due to frequent and heavy rains in the winter months, San Pablo faces the challenge of **landslides on its slopes**, which endanger housing, infrastructure and the lives of its inhabitants. As the frequency and intensity of rainfall increases due to climate change, the risk of landslides rises. San Pablo also suffers from a weak social and economic structure reflected, among other things, in the particularly high social vulnerability and crime rate in the parish. Violence against women is a core issue that has intensified significantly throughout the COVID-19 pandemic. While women lead 62 percent of households in San Pablo, most have no secure employment, which further impacts their **social and economic vulnerability**.

GIZ is already present on the ground in San Pablo through the country programme entitled *Intermediate Sustainable Cities*. This country programme assists the Government of Ecuador in implementing **policies and instruments for climate-friendly urban development as well as municipal environmental**

protection and climate change mitigation throughout the country, as well as in opening up financing options. Portoviejo is one of six pilot cities with ‘urban laboratories’ that develop local experiences and urban development strategies to incorporate them into the national urban development agenda. The Urban Living Lab Guardians of the Hills was recognised as having shown great **potential to be replicated in similar underserved neighbourhoods** and to raise awareness about disadvantaged and ‘forgotten’ neighbourhoods – often informal settlements – among policy-makers and the general public.

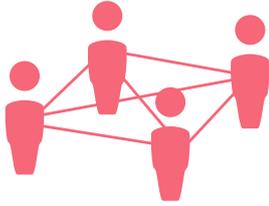
In neighbourhoods such as San Pablo, existing vulnerabilities further exacerbate the significantly higher disadvantages that women and girls suffer from climate change effects compared to men. Therefore, the Urban Living Lab Guardians of the Hills focused on the empowerment of women as a way to **strengthen community co-responsibility and multi-level articulation for any action within risk management and climate adaptation**. The collaboration with the ‘Guardians’ as female leaders identified by their own communities makes for an innovative approach that is tailored to the challenges faced in San Pablo, but that can also be scaled up to other contexts.

The health emergency generated by the COVID-19 pandemic has highlighted the need to generate public policies focused on making cities and human settlements more inclusive, safe, resilient and sustainable. In this context, the Urban Living Lab **re-emphasised the need to strengthen local responsibility and the cooperation of different stakeholders** – municipality, academia, professional associations, community – in order to successfully manage risks. New priorities such as preventing violence against women and using alert systems in the context of a pandemic arose during the Urban Living Lab.





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Activities

The Guardians of the Hills Urban Living Lab works along **five strategic lines** in order to implement ecosystem-based adaptation measures, sensitise on gender violence prevention and establish a community warning system:

1. Resilient and Safe Public Spaces
2. Community Alert System
3. Neighbourhood Risk and Emergency Committees
4. Gender-Based Violence Prevention
5. Sharing the Experience

RESILIENT AND SAFE PUBLIC SPACES



Public spaces in the San Pablo neighbourhood were integrated into the natural features of the slopes through ecosystem-based measures such as relief wells, ecological stairs and a communal area. The **small-scale construction measures** support the slopes' natural ecosystem to stabilise, facilitating the infiltration of rainwater into the soil and ultimately reducing the risk of landslides. As a result, these attractive community areas give children a new space to play and provide **safe social and recreational activities** for women and children. Opportunities for self-sufficiency through urban gardening can arise from these spaces.

Construction measures were designed by **multidisciplinary groups** from local universities and the municipality in collaboration with the Guardians and other community members. Thanks to the Guardians' involvement in the Gender Violence Prevention Strategy, a **gender-oriented process throughout the design phase of the Urban Living Lab's activities** was ensured. At the same time, the Association of Risk Management Professionals of Ecuador implemented a capacity-building strategy for participatory planning, construction and maintenance of the ecosystem-based solutions intended to increase social development, inclusion and resilience. The final phase of the Urban Living Lab involved the construction and implementation of the adaptation measures, along with technical advice to generate a Local Plan of Public Space Appropriation and Social Resilience.

COMMUNITY ALERT SYSTEM



Experts from the Association of Risk Management Professionals of Ecuador assisted the municipality and local community in the implementation of a community alert system. The objective is for the community to be directly involved in **monitoring threats of landslides and fires**. This is achieved by applying technological tools and protocols to assist the community in prevention and response activities, in cooperation with local authorities.

The community warning system includes **community alarms installed in strategic locations**, a pilot plan to train the local population on prevention and emergency plans when the alarms are activated. Through this alert system, the neighbourhood is connected to the municipal alert system composed by Neighbourhood Risk and Emergency Committees, fire brigade, police departments, ambulance and the local government. Since the COVID-19 pandemic, alert systems have been used to monitor the spread of cases and alert neighbours about infection dangers.



NEIGHBOURHOOD RISK AND EMERGENCY COMMITTEES



The Guardians of the Hills are part of **four emergency committees implemented in San Pablo** that are part of a functional system under the leadership of the municipality. Through these emergency committees, the community assumes responsibilities to plan actions and organise the attention of the emergencies presented in their neighbourhood thus contributing to the efficiency of the municipal crisis response capacity. The main goal of these committees is to train the community to recognize risk situations induced by climate change, implement self-protection measures and support evacuations if necessary.

As a response to the COVID-19 pandemic, the Sustainable Intermediate Cities Programme, together with the Association of Risk Management Professionals of Ecuador, expanded the intervention of this Urban Living Lab to **support the implementation of the Neighbourhood Risk and Emergency Committees as a means to fight against and monitor the pandemic** within the City of Portoviejo, including the provision of humanitarian support. This allowed a flow of information and direct communication between the neighbourhood leaders and the local government in order to identify COVID-19 alert cases and other risk factors. These are being monitored in a Municipal Alert System Platform that supports the political decision-making process.

GENDER-BASED VIOLENCE PREVENTION



A group of 20 women and men from San Pablo form part of the Urban Living Lab's **capacity building strategy**. They aim to generate more social awareness on violence and discrimination against women, provide care for victims of violence, and create a local network for the prevention of violence. In the context of increased violence against women due to the COVID-19 pandemic, a **Neighbour's Recipe Book** with tips for nurturing ties between neighbours was developed, in cooperation with national and international institutions. In addition, the gender-based violence prevention strategy was adapted to cater to the **challenges of virtual interactions and social isolation** brought about by the COVID-19 pandemic.

SHARING THE EXPERIENCE



Before the COVID-19 pandemic, several workshops took place to train women in the **participatory production of communication materials** to share their inspiring stories as 'Guardians' combating the impacts of climate change. This included the construction and painting of a 'mural of dreams' with the participation of local children, and the elaboration of a digital tale that rediscovers the cultural traditions and socio-environmental qualities showcasing the **resilience of men and women** in San Pablo. A book with memorial articles and interviews about San Pablo in times of the COVID-19 pandemic was also produced.



Publications

- [Módulo 1: Conceptos Básicos de Géneros](#)
- [Módulo 2: Cero tolerancia a la violencia contra las mujeres](#)
- [Módulo 3: Impactos sociales y económicos causados por la violencia hacia las mujeres y su marco de protección](#)
- [Módulo 4: Participación ciudadana y prevención de la violencia contra las mujeres](#)
- [Módulo 5: Poder y liderazgo en las organizaciones](#)



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Key Achievements

The Urban Living Lab experimented with innovative solutions providing recommendations and lessons learned in terms of participatory, community-based and gender-responsive planning approaches for the municipality of Portoviejo in partnership with stakeholders from the civil society. This enables the

municipality to develop effective strategies for climate-friendly and inclusive urban development, specifically to implement ecosystem-based adaptation measures bringing together the technical knowledge, social competences and convening power with procedures related to the urban management.



Achievements of the Guardians of the Hills Urban Living Lab

1. **Empowering women** by enabling them to serve as leaders for more resilience in the parish.
2. **Improving public spaces** through the participatory design of nature-based solutions.
3. Developing an innovative **early warning system** to target climate related risks that connects the local community with the municipal system for disaster risk management.
4. **Adapting to the COVID-19 pandemic** through capacity building of local communities on gender-based violence and isolation, engagement of Neighbourhood Risk and Emergency Committees and expanded use of the community alert system.

Several workshops on topics such as ‘Participatory Design of Nature-based Adaptation Measures for Landslide Risk Reduction in Informal Settlements’ have been conducted, leading to the implementation of **adaptation measures for public spaces** that can prevent landslides. These measures address SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), SDG 15 (Life on Land) and SDG 16 (Strong Institutions).

The **community-based alert system** was also developed and implemented in a participatory manner, taking into account existing communication networks, including the use of ICT-based messenger services via mobile phones. The Urban Living Lab shows us that through the active promotion of women for climate resilience, residents facing everyday challenges, like those of San Pablo, can be reached sustainably and can themselves **actively shape and develop their community living area**.

Women’s groups were particularly active in contributing to these achievements. They continue to work with a **locally recruited gender advisor** and play an important role in leading the community’s response to the COVID-19 pandemic. These successes have been picked up by the parish, which now works

together with local neighbours to further integrate the adaption measures into the local Risk Management System.

An online platform with the Urban Living Lab’s information, materials, experiences and methodologies is **available for other communities and institutions to replicate**. This sharing approach relates to national gender organisations and movements and facilitates their contribution to national policy creation. It also focuses on participatory, community-based and gender-oriented planning approaches, infrastructure design processes and ecosystem-based adaptation measures in cities.

An integrated mix of measures addresses SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), SDG 15 (Life on Land) and SDG 16 (Strong Institutions), has an eye on the interactions between the targets and uses them in a targeted way to promote synergies, thus achieving higher impact and greater sustainability. Ultimately, this approach contributes to SDG 16 (Peace, Justice and Strong Institutions). The participatory design of the measures ensures a **gender-sensitive perspective on climate risks**, as well as the strengthened role of **women as local actors for climate action**, therefore contributing to SDG 5 (Gender Equality).

The Way Forward

Various indicators demonstrate the sustainability of these strategies and methodologies. Support for its overall implementation comes from the **GIZ Intermediate Sustainable Cities Programme**, which also coordinates the Urban Living Lab together with partners. The programme is also responsible for sharing results and experiences with local actors and partner cities through online information and webinars in order to **scale up the Urban Living Lab's innovations**.

Guardians of the Hills is cooperating with **Portoviejo's Municipality** in order to continue and scale up the activities of this Urban Living Lab. Public space interventions and other successful construction measures will inform the development of the municipality's risk management system, ensuring their **sustainability, showcasing their interconnectedness and stressing the importance of multi-stakeholder partnerships**.

The **parish committee of San Pablo** is already working with the Urban Living Lab to identify more female change agents from the neighbourhood. This is supported by the municipality with the goal of replicating planning models and participatory management experiences in other communities. Further support comes from the **Academic Network for Urban Sustainable Development**, which aids with the development of community outreach projects. The University of San Gregorio is also part of

the Network and has supported implementation of the Urban Living Lab's activities and will replicate the strategies and methodology in the future.

Another example of successful cooperation is found in the experts of the **Association of Risk Management Professionals of Ecuador**, who provide technical support for the design of adaptation measures and the further development of the integrated warning system. They also provide **capacity building trainings to the Guardians of the Hills** and will continue with these after finishing the activities of the Urban Living Lab.

The Urban Living Lab's many experiences show great potential for scaling up in the future. These include the promotion of transformative approaches for urban climate resilience that address the underlying causes of gender inequality and strengthen citizen co-responsibility. These experiences will also be **shared among the other city laboratories in the GIZ Intermediate Sustainable Cities Programme**.

At the national level, the results of the Urban Living Lab will be taken into consideration to **develop a National Action Plan for the Urban National Agenda**, led by Ecuador's Ministry of Housing. Guardians of the Hills will serve as an outstanding example of a participatory resilience experience, ensuring that local voices are included in national guidelines and even in Ecuador's policies for urban sustainable development.



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WHAT MOBILISES PEOPLE IS SOCIAL ACTION

Zoila Moro

One female leader and matron of the parish stands out: Zoila Moro inspires her neighbours with her enthusiasm and her commitment to take ownership of public spaces, which she wants to make friendlier and safer. Zoila feels a strong sense of belonging to San Pablo and speaks of her neighbours as her ‘great neighbourhood family’.

The community characterises her as a brave, enterprising, and hard-working leader. Zoila herself says, ‘I do a bit of everything, I’m not scared of work and I am the pillar of my family’. In the mornings she works in the cafeteria of the Juan Montalvo school, in the evenings she dedicates herself to her bazaar. She inherited a small shop from her father, but she lost a lot in the last earthquake: ‘Bottles of oil and fizzy drinks were broken; I lost everything... but anyway, I didn’t stop, I took out a loan and I established a mini-bazaar.’

Zoila Moro is a community leader and twice-elected president of the parish. She smilingly admits to being ‘involved in almost everything. [...] I am also a health promoter and I organise bingo events and, of course, the festivals...’

She remembers that in the 1960s, the hills of San Pablo looked totally different. ‘My father arrived here more than 60 years ago when this was nothing but forest; very few families lived here.’ By now, less trees cover the hills of San Pablo.

This leads to heavy rainfalls during the rainy season, causing landslides in surrounding hills and flooding of the urban centre. Zoila dreams of seeing her hill ‘green, full of carob, kapok and tamarind trees’. She shares the stories that her grandmother told her when she was a girl: ‘She told me that the hill used to be full of carob trees, which were very large, and which gave them a lot of shade’. Smiling playfully, she says that, ‘since there were so many hills, trees and fauna, there were said to be elves’.

Zoila is convinced that they should restore the hill. This is why she decided to be involved in the Guardians of the Hills

Urban Living Lab. She mentions that ‘what mobilises people is social action’. Therefore, she aims to include the community in her struggle of restoring public spaces, encouraging the community to paint houses and arranging flowers and plants on her block. Furthermore, ecosystem-based installations such as orchards, terraced slopes, eco-paths and/or playgrounds, which stabilise the slopes and allow for increased rainwater infiltration, aim to help mitigate the risk of landslides and support the restoration of the hill.

Many of the people involved with Guardians of the Hills are women. This makes for a further positive effect of the initiative: through becoming group leaders, many women are encouraged to speak up on domestic violence, and to identify and guide procedures to support women affected by violence.

Zoila says that transforming your neighbourhood is how you fix up your house: ‘based on needs but in an organised and entrepreneurial way’. For her, every day her struggle is in recovering public spaces, calling upon the community to paint the houses and arrange her block with flowers and plants.

The community leader emphasises that awareness and sensitivity to the needs of animals are crucial aspects of a well-functioning community, explaining that ‘in the neighbourhood there is room for us all; animals are part of our lives. How people take care of them and love them says a lot about the wonderful people that we have in our parish’.

Her generosity and impetus to serve her large family is touching. ‘I am silly when it comes to doing something for us. I could spend days on end knocking on doors until we achieve our goal.’ This is Zoila Moro, a sensitive fighter who mobilises people, enables them to understand how a community is built, and encourages every ‘family member’ to become a more proactive person, making for a committed and resilient neighbourhood.

“Bottles of oil and fizzy drinks were broken; I lost everything... but anyway, I didn’t stop, I took out a loan and I established a mini-bazaar.”

Zoila Moro, Community leader and twice-elected president of the parish



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**CLOSING
REMARKS**



JORDAN: URBAN MICRO-LUNGS

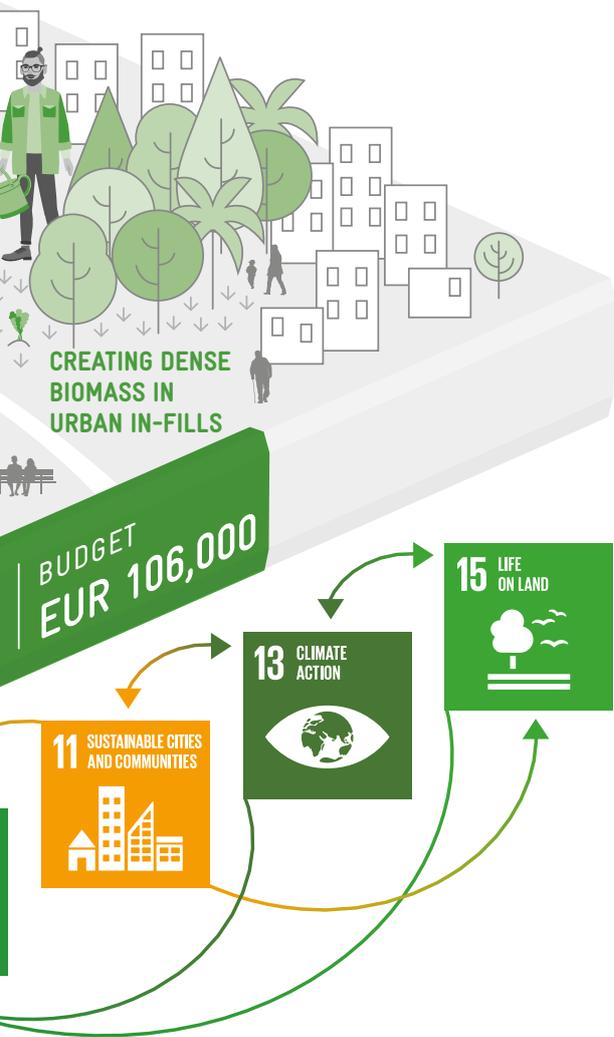


The Urban Living Lab Urban Micro-Lungs in Jordan’s capital city Amman **aims to improve the quality of life in dense and deprived urban areas by creating green space**. Due to the scarcity of open spaces and water in Amman in the face of increasing seasonal heavy rains, the Urban Living Lab is working with a number of innovative small-scale solutions using the Miyawaki method to create ultra-dense, highly diverse and multi-layered urban forests. These urban micro-lungs will help to green the city with multiple impacts on urban heat island, air quality and storm water management. The process was

implemented with the cooperation of many different stakeholders, demonstrating the importance of multi-actor climate action. The Urban Living Lab’s vision is to create many more urban micro-lungs in Jordan in the future.

The implementation of this Urban Living Lab was severely affected by the COVID-19 pandemic. The planting could not be done by the community, therefore the partner NGO Tayyun assumed responsibility for the planting. Community outreach shifted to one-to-one interviews and digital platforms, showing the potential of group chats. Thus, one alternative was developed





to encourage community appropriation of the project. In this sense, the pandemic inspired the creation of longer-term engagement activities such as the Junior Rangers Programme together with the Manara Youth Initiative. Throughout its activities, the Urban Living Lab has shown the **feasibility of creating green spaces even in adverse conditions** characterised by dense construction, high degree of surface sealing and lack of open spaces.



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WHO

Ministry of Environment and the Greater Amman Municipality, TAYYUN Research Studio.

WHAT

Urban Micro-Lungs is an Urban Living Lab in the East of Amman that applies the Miyawaki methodology for afforestation to create green space.

WHEN

July 2019 – August 2021

WHERE

Marka and Al-Manara districts in Amman, Jordan

WHY

Residents in disadvantaged, dense neighbourhoods will benefit from green open space. Local biodiversity, air quality and water retention will also improve.

GERMAN DEVELOPMENT COOPERATION PARTNERS

Improving Living Conditions in disadvantaged Areas in Amman (ILCA), Sustainable use of ecosystem services in Jordan – Energy and Climate Fund (EKF-ESS), CityRegions2030

BUDGET

106,000 euros



The Urban-Micro Lungs Initiative in Amman, Jordan



The video shows the implementation of the Urban Micro-Lungs initiative in Amman utilising and adapting the Miyawaki planting method to create self-sustaining, dense urban micro-forests in as little as three years.

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Conducting site activation workshops with local residents



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THE URBAN LIVING LAB: APPROACHES, ACTIVITIES, ACHIEVEMENTS

Creating the Urban Living Lab

Amman is facing climatic challenges and an increase in extreme weather events such as heatwaves, droughts and torrential rains. The city's population has doubled from 1.9 million in 2004 to more than 4 million in 2015. Many new dwellers settle in the dense and poorer eastern parts of the city, overstressing the capacity of an infrastructure that is already insufficient. **Rapid urbanisation in combination with climate change impacts** has led to challenges such as little to no access to public and green spaces, poor air quality, noise pollution and high risk of flooding. **Future-proofing the city against the impacts of climate change** is therefore one of the government's main priorities.

With its country project Improving Living Conditions in Disadvantaged Areas of Amman (ILCA), GIZ aims to develop green spaces in Amman's disadvantaged areas through implementing participatory pilot projects and strengthening Jordanian partners. In three construction measures, the project exemplifies elements of green infrastructure and thus illustrates urban greening alternatives. The CitiesChallenge 2030 ideas competition was a great chance for the country project to develop an additional green space technique with a focus on creating high-dense biomass on marginal remaining areas by adapting the Japanese Miyawaki method to local conditions. Of great importance was the fact that the application of the method does not require large areas but allows the use of small residual patches of land.

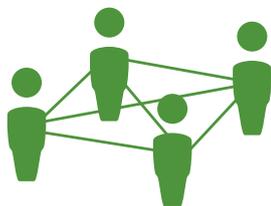
This Urban Living Lab aims to **tackle the low proportion of urban green spaces in Amman**, which currently make up only 2.5 percent of the city. Pressure on the remaining biodiversity and factors such as poor air quality, increased temperature, noise pollution and a lack of soil water retention also result in the urban heat-island effect. With these conditions expected to worsen over time, the ILCA-project decided that it is high time for action. Residents in East Amman are among the most vulnerable to adverse climate change impacts. By cooperating with them through **community activation methods and joint planting events**, the Urban Living Lab intends to create climate action, awareness and support for future urban micro-lungs.

Through the design of two new urban micro-lungs, this Urban Living Lab proposes to secure the contribution of urban green spaces and enhance innovative greening strategies. **Innovative small-scale forests based on the Japanese Miyawaki method** showcase that it is possible to restore and reconstruct natural ecosystems within the city. This Urban Living Lab is leading **the first application of the Miyawaki method in the Middle East**. Apart from their climate benefits, they also offer some much-needed recreational space for citizens. Despite local water scarcity, this method is highly replicable.

While the COVID-19 pandemic has inevitably affected the Urban Living Lab's timeline, it has also inspired new focal points within the local community. **Working with the community through virtual tools has resulted in longer-term community outreach strategies and a focus on creating even more urban micro-lungs in the future.**



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Activities

The Urban Micro Lungs initiative concentrates on the creation of green spaces in the city of Amman by adapting the Miyawaki method. Alongside the implementation, the Urban Living Lab focuses on capacity building for municipal staff members for maintenance in the future and site-activation workshops and joint planting events with the community.

1. Urban Forests and the Miyawaki Method
2. Capacity-training of municipal staff
3. Site-activation workshops



URBAN FORESTS AND THE MIYAWAKI METHOD



The Miyawaki method is the main methodology of this Urban Living Lab, aiming to plant small, but dense forests in urban in-fills like roundabouts or abandoned spaces. According to the method, which was named after Japanese botanist and plant ecologist Akira Miyawaki, these untapped spaces can be used to restore and reconstruct natural ecosystems. This reconstruction of local forests through the use of native species of trees results in rich, dense and efficient forests that grow 10 times faster, are 30 times denser and store 40 percent more carbon than conventional plantations.

The Miyawaki method starts with soil engineering, which consists of building soil life, fungal networks and biomass. After a careful selection of native and drought-resilient primary and secondary plant species, the natural growth of the self-sustaining and maintenance-free native forest begins. This method has been successfully tested in other parts of the world, including dryland areas and deserts.

Together with the Tayyun Research Studio, the Urban Living Lab has implemented the design of two urban micro-lungs in the districts of Marka and Al-Manara in East Amman. The sites were selected in a cross-sectoral manner, involving different departments of the city administration, the city government as well as the Ministry of Environment. The Omar-Faisal Park in Marka spans across 250 square metres, where 780 plants were planted as part of the site activation after careful soil improvement with natural, organic-rich materials. In the plot in Al-Manara, 430 plants were planted after soil engineering. These two micro-lungs are made up of 21 different species. Two years after planting, the forests will be fully consolidated and therefore self-sustaining and self-maintaining. This means they will help to reduce pollution, enhance flood resilience and act as storm water storage, regulate the microclimate, improve air quality, support biodiversity and boost residents' health and well-being.

CAPACITY-TRAINING OF MUNICIPAL STAFF



During the implementation of the first two micro-lungs, the Urban Living Lab offered capacity building for municipal staff members. This enabled them to take over the care of the two micro-lungs and include them in irrigation and maintenance schedules.

Partners from the Ministry of Environment and the Municipality of Amman have also been trained to allow them to develop similar urban greening projects. The Urban Living Lab hopes that these projects will be integrated within the urban design plan of Amman.

SITE-ACTIVATION WORKSHOPS



The Urban Living Lab has conducted walks and site activation workshops with residents aimed at raising awareness of the importance of green infrastructure and identification with the new urban micro-lungs. These workshops were supported by the local Dibbin Association for Environmental Development who provided specialised personnel. By creating a sense of ownership and responsibility, residents will interact with their new public space in a respectful manner and learn how to use its benefits. With the onset of the pandemic, outreach shifted towards one-to-one interviews and digital tools such as group chats.

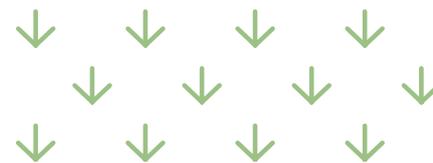
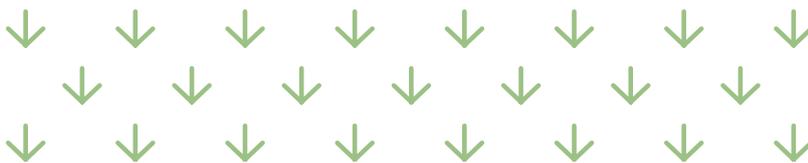
Community members and youth initiatives participated in the selection and planning of native trees and shrubs, including men, women, children and elderly residents. In order to avoid reduced community outreach during the COVID-19 pandemic, longer engagement activities such as the Junior Rangers Programme with the Manara Youth Initiative were implemented. Including the junior rangers in forest observation and growth monitoring has created an important learning opportunity for children. They could not only learn more about native plants, but they also increased their local knowledge and formed long-lasting connections among themselves.

URBAN FORESTS AND THE MIYAWAKI METHOD

10
Times faster

20
Times more biodiversity

30
Times denser



1. SEEDINGS

Seedlings are planted densely, 3 trees/m², and randomly (not in line), mixing as many native trees of potential natural vegetation as possible.

2. NATURAL

Approximately 3 years after planting, the seedlings allow the most natural growth.

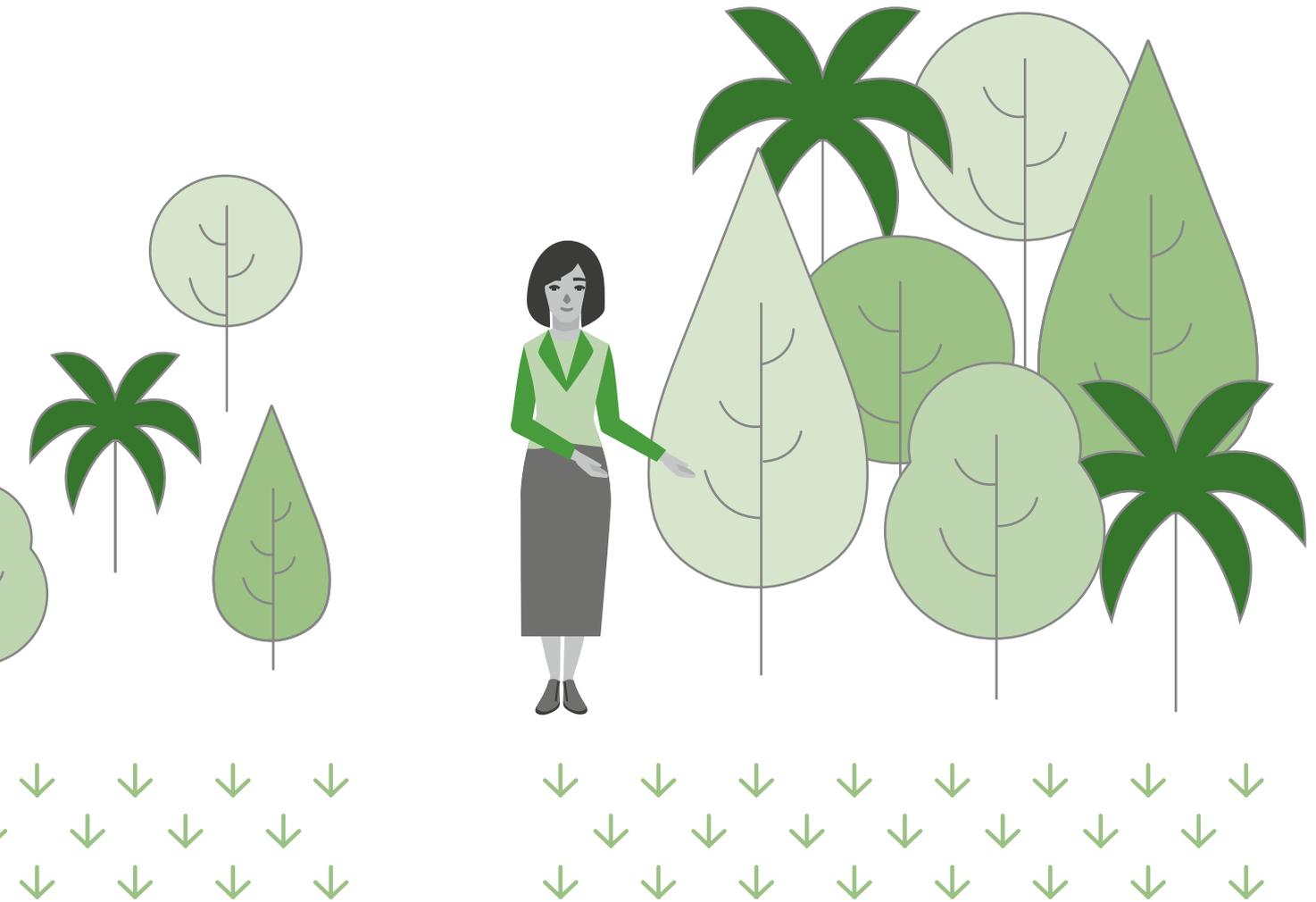




Local



Participative



SELECTION

Planting, natural selection among adapted ones to develop quickly.

3. MATURE FOREST

By 15–20 years after planting, the early model of a dense mature forest will be established.

Key Achievements

The Urban Living Lab ensures **increased availability and awareness of green public spaces** in Amman's neglected eastern districts. With the use of an integrated approach, especially the participation of different experts, the new micro-lungs have shown potential to decrease urban heat islands, improve the air quality and ultimately improve quality of life in the surrounding neighbourhood, thus contributing to SDG 3 (Health and Well-being), SDG 11 (Sustainable Cities), SDG 13 (Climate Action) and SDG 15 (Life on Land). Every two months, survival and

growth rates of plants are measured by Tayyun and the Greater Amman Municipality.

At the same time, the Urban Living Lab has succeeded in engaging the community through site activation workshops and cooperation with local initiatives. This ensures ownership and support of residents, as well as **building capacity among government officials to replicate the creation of these micro-lungs** using the Miyawaki method. Local volunteers and municipal government officers take care of plants and are also available to support schools and other interested districts or cities in the Miyawaki method.

“Amman’s city government has already started to sound out opportunities for the further application of the Miyawaki method in relevant spaces, for example in cooperation with the GAM-UNDP project ‘Heart of Amman’”.

Katharina Manecke, GIZ Jordan



Achievements of the Urban Micro Lungs Urban Living Lab

1. **Cross-sectoral selection of the sites** to develop the urban micro-lungs has enabled the city government to obtain an overview of residual land in the city and discuss their use.
2. The **Miyawaki method** has not been used in small urban spaces in the Middle East before. Success of this Urban Living Lab will allow for mainstreaming of this greening approach in many dense cities in semi-arid climate zones all over the world.
3. **Adapting to the COVID-19 pandemic** through virtual community involvement and creation of Junior Rangers Initiative.





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“The success of the urban greening experience for cities prompts us to work on replicating it in several areas within the neighbourhoods of the capital, Amman, to improve the air quality and create spaces for citizens to practice walking and hiking.”

Bilal Shaqarin, Acting Director of Climate Change at Jordan’s Ministry of Environment

The Way Forward

The sustainability of this Urban Living Lab is particularly evident from the cooperation and empowerment of its various partners. The local **GIZ project ‘Improvement of Living Conditions in Disadvantaged Areas of Amman’ has coordinated the project together with local communities and the city government.** This joint approach has resulted in local ownership as well as a reliable plan for the continuous maintenance of the micro-lungs.

The **Tayyun Research Studio**, which works with the Midorization Project on forest maintenance in East Amman, was responsible for **implementing the Miyawaki method** in the Urban Living Lab’s urban micro-lungs. For two years, the studio will monitor the plots and provide **capacity building trainings** for municipal staff, enabling them to maintain the plots. The Dibbin Association for Environmental Development has also assisted with the training of community members and municipal staff members.

The Greater Amman Municipality and the Ministry of Environment have assisted in providing and identifying two suitable publicly owned plots for the creation of the urban

micro-lungs, analysing various street islands and other leftover spaces throughout the city. This knowledge, in combination with the success of the Urban Living Lab, will lead for upscaling opportunities of this innovative approach for creating urban green spaces.

The Urban Living Lab has served as a pilot for applying the Miyawaki method within the semi-arid climate of a densely populated, neglected urban area in a Middle Eastern city. **Lessons learned and instructions will be shared locally and in the region**, including with the City Council, the Royal Scientific Society, the German Jordanian University and the Urban 20 Initiative so that they can potentially be **replicated in the future.**

Indeed, there are discussions to upscale these efforts and replicate the Miyawaki method in the rehabilitation of other sites in Amman, for example in the King Abdallah II Park and another site where GIZ’s project Improving Green Infrastructure in Amman is located.

This shows how small-scale actions such as creating the urban micro-lungs can act as a decisive impulse for implementing new, incremental strategies of integrated urban development.





THIS FOREST IS A GREEN RAY OF HOPE FOR THE PEOPLE OF JABAL AL-MANARA

Muhammad Al-Hourani

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In the past, the people of Jabal Al-Manara in the East of Jordan's capital city Amman never expected that after a few hours of torrential rain at the beginning of each winter season, the neighborhoods they lived in would turn into swamps covered in a thick layer of squelchy mud that would last long after the rain stopped. Climate change impacts are highly visible in this usually very dry city that is not prepared for the muddy torrents resulting from heavy flash rainfall.

'Muddy floods and high temperatures cost us hundreds of dinars in losses', explains Muhammad Al-Hourani, the owner of a household goods store in Jabal Al-Manara. Muddy torrents frequently interrupt trading activities, damaging goods and forcing merchants to display their products inside rather than outside their shops, he adds.

Al-Hourani's story is like those of dozens of other Al-Makara residents, where the combination of climate change effects and fast population growth transforms the city into a concrete jungle of crowded streets with no public or green spaces.

But recently, hope has come to Jabal Al-Manara. Al-Hourani enthusiastically speaks about the urban micro-lung, which was implemented by GIZ and other governmental and local authorities, 'to convert the neglected space into a green space filled with

dense trees, serving as a glimmer of hope that the muddy torrents will stop, and more shade will be available to protect their shops and goods from damage in the future.'

The project has been carried out by GIZ in cooperation with the Ministry of Environment, the Greater Amman Municipality, Tayyun Research Studio and the Dibbin Development Association. Together, these stakeholders planted 420 saplings of 18

plant species in the Al-Manara neighborhood. They used the Miyawaki method to cover a plot of about 135 square metres with seeds planted in the engineered soil and improved biomass.

Together with several other local merchants, Al-Hourani participated in the different cultivation stages that began many days before the start of planting trees. He describes that the feeling he experienced during the process of planting trees 'will motivate me to be one of the guardians of the forest' to protect it from any attack that may affect it.

He will patiently wait for the urban micro-lung to grow in order to fulfil his ambition to 'wake up every morning and open the windows of my room overlooking it. This forest will be the first thing I look at very day, giving me the hope that the future will be better and green.'

"Muddy floods and high temperatures cost us hundreds of dinars in losses."

Muhammad Al-Hourani, Owner of a household goods store in Jabal Al-Manara



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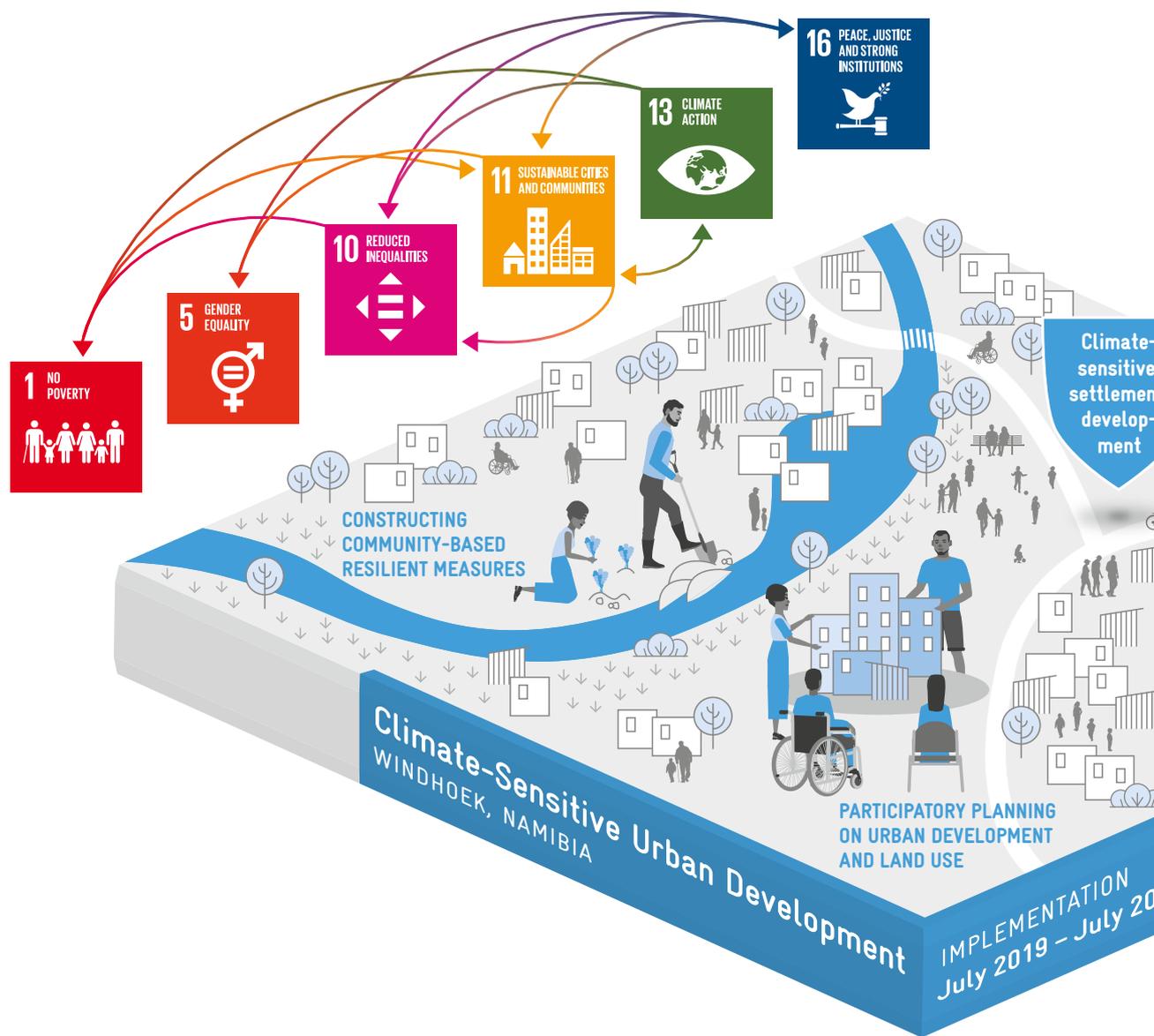
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NAMIBIA: CLIMATE-SENSITIVE URBAN DEVELOPMENT

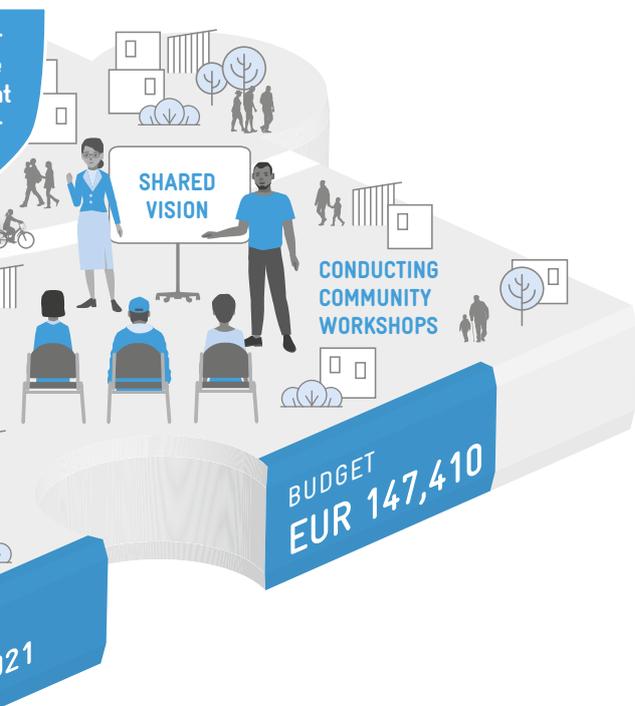


The Urban Living Lab in Namibia implements participatory and climate-sensitive planning in Onyika, an informal settlement in the outskirts of Namibia’s capital Windhoek. Together with the organised settlement community, it aims to build a shared vision for the settlement to be legalised and to shape a concrete intervention that improves their living conditions and climate resilience. In Windhoek, many settlements such as Onyika struggle with socio-economic challenges due to their informal status, as well as with climate change effects like rainwater flash floods. By

implementing a **participatory and climate-sensitive approach to planning**, the Urban Living Lab works jointly together with the local community on the further legalisation of the settlement and its upgrading. For that reason, the Urban Living Lab builds on Namibia’s new Flexible Land Tenure System that has provided a base for a more resilient and integrated settlement development with a strong sense of ownership for its residents.

These approaches were implemented during the COVID-19 pandemic, which inevitably affected the approval process for





the planned activities by the City of Windhoek among other aspects of implementation. For example, community feedback sessions to discuss technical designs have not been possible, causing the Urban Living Lab to change its timeline. However, the pandemic has **emphasised the need for resilience against economic shocks and against health emergencies**, making settlement development an even more urgent undertaking.



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WHO

City of Windhoek, [Namibia Nature Foundation \(NNF\)](#), [Research and Information Services of Namibia \(RAISON\)](#).

WHAT

This Urban Living Lab on Climate-Sensitive Settlement Development prototypes participatory upgrading in Windhoek's settlement Onyika.

WHEN

July 2019 – July 2021

WHERE

Onyika No.2, informal settlement in Windhoek

WHY

The Urban Living Lab aims to show how participatory approaches to climate sensitisation can be used to ensure long-term sustainability of settlement upgrading projects in Namibia.

GERMAN DEVELOPMENT COOPERATION PARTNERS

[Support to Land Reform](#) (since 2021: [Inclusive and Sustainable Urban Development \(ISUD\)](#), [CityRegions2030](#))

BUDGET

127,410 euros
20,000 euros by ISUD



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THE URBAN LIVING LAB: APPROACHES, ACTIVITIES, ACHIEVEMENTS

Creating the Urban Living Lab

Namibia is experiencing rapid urbanisation due to largely informal urban growth. About 60 percent of the urban population live in informal settlements in precarious living conditions. Substandard housing and poor sanitation present considerable health risks. **Informal settlements like Onyika have very poor resilience towards natural hazards such as floods.** Climate change in Namibia is manifesting itself through higher temperatures, reduced rainfall and a higher frequency of extreme weather events such as flash floods. In all these cases, the urban poor are particularly vulnerable to the **mutually reinforcing challenges** of poverty, lack of education, health risks and extreme weather events. Tenure insecurity is also a challenge, along with a general lack of access to basic services. This means that

informal settlements in Namibia are **not fulfilling their function as safe and social spaces and neighbourhoods with affordable mobility and resilience to environmental and other shocks.**

The base for the Urban Living Lab activities in Onyika is the **Flexible Land Tenure System (FLTS)** implemented by the City of Windhoek, which was supported by the GIZ country project Support to Land Reform. This system aims at **providing land tenure to people living in informal settlements in a fast and affordable manner**, therefore improving standard urban planning procedures.

With the termination of the Support to Land Reform project in 2020, the Inclusive Sustainable Urban Development (ISUD) country project was launched, which took over the coordination of the Urban Living Lab in Onyika. The ISUD project supports





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the Ministry of Urban and Rural Development to guide local authorities' town planning and upgrade informal settlements with a multi-level approach that includes direct support to five partner cities in their planning activities together with local communities in the informal settlements.

This Urban Living Lab cooperated with a local NGO and with the Municipality of the City of Windhoek **to incorporate climate sensitive planning into settlement development.**

Through several community workshops in the Onyika settlement in Windhoek, the Urban Living Lab has developed climate sensitive development based on adaptation and resilience capacities that **address current and future local needs.** It also intends to raise the general awareness of residents about climate change effects and planning for more resilient settlements.

This Urban Living Lab worked through **participatory community workshops** to plan interventions for Onyika. After the

initial planning exercise, the Urban Living Lab assisted the community with the implementation of several activities. A focus is placed on public spaces in Onyika, especially those close to the local river that frequently get flooded. These experiences were collated as part of a **lessons-learned paper** to inform the City of Windhoek and other local authorities on the implementation of climate sensitive settlement development.

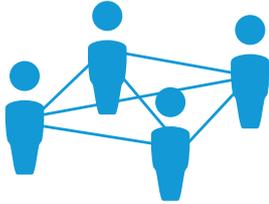
The COVID-19 pandemic has not shifted the focus of this Urban Living Lab. It has, however, led to delays in planning approvals and community feedback. The pandemic has also shown the importance of making Onyika a safer, healthier and more resilient settlement. Economic resilience, which can in part be supported by secure land tenure, has proven to be of value to residents who have suffered economic losses using the COVID-19 pandemic.



Participatory
planning
on urban
development
and land use



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Activities

The Urban Living Lab on climate-sensitive urban development in Namibia considers **secure land tenure as an important base for settlement development**. By improving tenure security and local ownership, the implementation of integrated development plans, decided in participatory and inclusive workshops, will ultimately be more successful.

1. Participatory workshops
2. Implementation of integrated development measures
3. Development of guidelines and information material for climate-sensitive settlement development

PARTICIPATORY WORKSHOPS



The main approach for working with Onyika's residents consisted of a series of **participatory community workshops**, facilitated by the local town planner, city officials and Urban Living Lab members. The intention was to encourage residents to identify with the settlement to create a sense of belonging. The workshops also served to increase awareness of local public spaces, climate risks, the importance of including vulnerable groups in the planning process and ensuring sustainability through secure tenure.

During three community workshops, the following participatory methods were employed using models and drone images of the settlement:

- **Participatory Mapping:** Community driven brainstorming of the opportunities and risks inside the settlement.
- **System Circles:** Participatory methods to identify issues and how climate change may impact the community.
- **Transect Walk:** Identifying different areas with problems and opportunities.
- **Collaborative Spatial Planning:** Conceptualisation of an ideal future by drawing on aerial maps of the settlements, focusing on public spaces and blacking out private areas.

This allowed the Urban Living Lab to get a better understanding of the impacts of climate change on Onyika, to identify key

challenges such as safety, health and flooding, and to develop a plan with the community.

Most importantly, the Urban Living Lab based the design of the participatory workshops on best practices and past experiences with community engagement, while also **adapting each workshop after feedback** from the previous ones. Leave No One Behind was a guiding principle, resulting in inclusivity, representation of minorities, accessibility, gender sensitivity, interactivity, flexibility and a focus on demands from the communities.

IMPLEMENTATION OF INTEGRATED DEVELOPMENT APPROACHES



After the workshops, the Urban Living Lab facilitated the **creation of five community working groups supported by architects**. A special focus was placed on the inclusion of vulnerable and marginalised residents. The groups analysed possible interventions in Onyika to address challenges such as storm water management, public open space development, waste management, accessibility, security and the development of a community centre.

The working groups agreed on an integrated approach consisting of the following construction projects:

- **Storm water and waste management:** Construction plans included the rehabilitation of paths with permeable



materials, the rehabilitation of the riverbed with bioswale drainage areas, and the removal of blockages in the riverbed. The skip was relocated and transformed into a recyclable collection point, while also conducting waste education for residents at the new skip location.

- **Public open space development:** The kindergarten was transformed into a multi-functional community space to provide garden and resting space. After school hours, the space is open to the public. Community gardens provide learning opportunities as well as recreational space. At the same time, the multi-functional social space serves as a community centre and as a venue for cultural activities.
- **Street space:** Onyika's main road was narrowed, and traffic was further slowed down through the use of potted plants and trees. This created spaces for people to walk and gather. To increase safety, streetlights were also installed. The establishment of a Neighbourhood Watch was encouraged and street names throughout the settlement were established to provide identity and enhance accessibility.

local stakeholder consultations and international best practices. These include experiences and lessons learned from this Urban Living Lab's activities.

Through its cooperation with the municipality and the GIZ ISUD project, the Urban Living Lab also intended to publish a **policy paper**. This emphasises the importance of replicating similar projects all over Namibia, making climate-sensitive urban development, participatory workshops and the quest for land tenure more attainable.

DEVELOPMENT OF GUIDELINES AND INFORMATION MATERIAL FOR CLIMATE- SENSITIVE SETTLEMENT DEVELOPMENT

An important activity of this Urban Living Lab was the **development of guidelines and information materials that can further inform climate-sensitive settlement development plans in Namibia**. These guidelines are based on existing laws,





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Key Achievements

The Urban Living Lab on climate-sensitive urban development in Namibia has successfully applied a **participatory design and planning process** to support dwellers in actively shaping their neighbourhood and taking responsibility for its further development. Its participatory and inclusive nature contributes to SDG 1 (No Poverty), SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities) and SDG 16 (Peace, Justice and Strong Institutions) by giving vulnerable groups a voice in decision-making. In addition, the experience gathered from the participatory workshops enables municipal decision-makers and officials to gain **insights into local needs**. The community vision for further development of the settlement and cooperation with the municipality are two important outcomes that will undoubtedly help shape further development initiatives.

In terms of climate change, the Urban Living Lab in Onyika contributes to SDG 13 (Climate Action) by **improving resilience and functionality of the settlement**. Intervention ideas focusing on main challenges such as safety, health and the risk of floods will also allow for more climate-sensitive development based on local needs. In addition, the Urban Living Lab has raised awareness on climate risks and provided residents with useful guidelines and information materials. A collation of the community's experience is to be published as a best practice policy paper and will further contribute to SDG 11 (Sustainable Cities and Communities) by inspiring resilient and sustainable settlement development in Namibia.

Building on the crucial framework of the Flexible Land Tenure System, the Urban Living Lab in Onyika has made it the subject of prototyping methods for participatory settlement upgrading.

This approach has led to the use of structures of self-governance, interest representation and voting, which were created for the legalisation of ownership and for the planning of settlement upgrading measures. The Urban Living Lab has also piloted methods that empower the community to develop a vision for the neighbourhood and prioritise concrete actions. In doing so, the Urban Living Lab has addressed the community as a whole and focused on the collectively used spaces, especially public spaces, streets and roads as well as social infrastructure. This is seen to be a prerequisite for a functional, inclusive and socially cohesive city.

Ultimately, **access to land titles helps address a number of SDGs**: reducing poverty through the incremental creation of generational wealth (SDG 1), improving health and well-being through better public spaces (SDG 3), involving women's groups in planning and application of activities (SDG 5), enabling the installation of basic services for clean water and sanitation (SDG 6), reducing inequalities by upgrading the settlement to meet the needs of people with disabilities (SDG 10), making housing safer and more affordable (SDG 11), raising awareness for climate risks (SDG 13) and reducing urban sprawl (SDG 15).





Achievements of the Guardians of the Hills Urban Living Lab

1. **Strengthening of landowners' representation in the land legalisation process** as a lever for the planning of settlement upgrading for the prioritisation and design of activities internally, and as a negotiator with the city administration externally; this strengthened role is a prerequisite for long-term process of district development and self-help.
2. **Participatory methods such as transect walks and system circles** have been used in German development cooperation for many years but were new in the local context. The successful spatial imagination of residents shows that these methods work in informal and rural settlements worldwide.
3. The often less-than-adequate mapping of informal settlements make risk management hard. In Onyika, the Urban Living Lab worked with **geo-referenced climate prognoses and with community members** to identify areas of high risk.
4. **Adapting to the COVID-19 pandemic** through social media engagement and WhatsApp groups have proved to be particularly important for community participation.





The Way Forward

The Urban Living Lab aims to **achieve political buy-in from the City of Windhoek** in order to upscale climate-sensitive urban development in informal settlements. The city administration has already made the approval process for construction projects easier, allowing for scaling up of climate-sensitive development measures in the whole city. While the COVID-19 pandemic has paused the approval process, further collaboration with the municipal level and partner towns is intended.

With the help of the **policy paper**, the Urban Living Lab also aims to **contribute to policy developments that allow for the registration of land titles through the Flexible Land Tenure System**, which is piloted by the City of Windhoek's Department of Housing, Property Management and Human Settlement. Here, the **Namibia Nature Foundation** and the **Research and Information Services of Namibia** contribute to develop the guidelines for the policy paper by bringing in an environmental and an urban development perspective.

The Urban Living Lab generated important learning experiences that will flow into the work for the ongoing country project ISUD. This reflects how the CitiesChallenge 2030 has helped to strengthen GIZ's urban development portfolio in Namibia and contributed to mainstream inclusive urban development and planning within German Development Cooperation.

Furthermore, **ISUD** supports the development of the land tenure system, ensuring the coordination and quality management of activities and advising the city in terms of participatory and inclusive participatory planning tools. While work with the City of Windhoek on the FLTS will help with tenure security, the Urban Living Lab also aims to promote a more climate-sensitive urban development in Namibia. This will be done by **compiling and sharing lessons learned with other local authorities and stakeholders** such as NGOs dealing with informal settlement upgrading.

After approval, the proposed designs for the new multi-purpose centre will be improved with the help of an architect or a civil engineer in close cooperation with GIZ headquarters. Most importantly, the **construction of the centre will be tendered locally** in order to create employment opportunities, develop skills of the target group and increase ownership.





“One day Onyika will look like a town, not like it is now, but a real town, and this will make me so happy.”

Johanna Sheehama,
Principal of the J. Sheehama
Pre-Primary & Day Care Centre

ONE DAY ONYIKA WILL LOOK LIKE A REAL TOWN
Johanna Sheehama

In Onyika, an informal settlement on the outskirts of Windhoek, houses are huddled together along dusty and disorientating streets. The smell of human waste floats through the air, burning your eyes, which are most likely fixed to the ground to avoid stepping into streams of sewage and the waste that lies scattered, collecting in the dry riverbed and its surrounding drainage area.

Johanna Sheehama is the principal of the J. Sheehama Pre-Primary & Day Care Centre. She has lived in Onyika her entire life. Economic difficulties are evident as you step inside her school. One single room constitutes the whole day-care centre, built out of zinc sheets. The floors are simply covered with sand. Creatively and almost defiantly, she has made a bed for the children at her school out of various blankets – a corner of comfort where kids can rest snugly despite their surroundings.

As the sun bakes down, Johanna proudly shows her few toys and learning materials. Every day, many children from around the community walk to Johanna’s school. The number fluctuates based on what is happening in the life of her community members – the informality of the surroundings translates to the informality of every-day life.

The City Administration has provided basic infrastructure for the residents in Onyika, however not all households are connected yet. Some of the houses on the outskirts of the settlement lack a permanent structures and sanitation or toilet facilities. Children are often seen climbing over piles of trash, braving the dry riverbed for a shrub or bush to use as a toilet. Besides the threats of criminals in the area, the real danger for children

here is the health risk coming from their lavatories as they step over accumulated human waste baking in the sun.

An additional hazard is the pollution of already limited water resources due to open solid waste and the lack of sanitation infrastructure. Removal of vegetation and degradation in and around informal settlements – when trees are cut down to make space for make-shift homes – has proven to be another problem, removing necessary shelter from heat in a warming climate.

Informal settlements such as Onyika are especially vulnerable to environmental hazards: they are squeezed in next to each other on the slopes of mountain sides. When the flash floods come, they do so with such force that they wash away people’s homes and their belongings, lost to the forces of nature.

Even more distressing is that people often lose their children due to rapid and unannounced flash floods. ‘We are scared. Sometimes at the time of the flood, they get washed away with the flood. We’ve lost lots of children. The water is strong and moves fast,’ says Johanna.

She also highlights the dangers the floods bring in addition to the strong waters. ‘The dirty things come inside the house, the rubbish and all the (human) waste from the river,’ referring to the waste that accumulates in the riverbed due to the lack of access to proper sanitation facilities. When the flood waters come, this waste is washed into people’s homes, where piles of rubbish and human waste then cover the floor.

In the face of all these problems, the residents of Onyika have decided to act: Together with the Urban Living Lab, they embarked on a community-led process of creating a climate resilient community. In collaboration with donors, technical support organisations, climate change experts and the City of Windhoek, the community is working on a pilot project that provides climate-friendly solutions, aiming at improving life in this community.

A list of possible interventions was proposed by the community and integrated with the help of a landscape architect, an urban design specialist, a traffic engineer and a waste specialist. One key intervention is the construction of a bioswale system in order to create a water retention area that can filter contaminated water or greywater and convey stormwater runoff. Another intervention is the reorganisation of the community’s current waste collection system. In addition, the Urban Living Lab plans to rehabilitate and revive the riverbed edge along the kindergarten, for example by clearing debris from the area, constructing permeable walkways and establishing small gardens.

The community hopes that these interventions will become a case study and testing ground to roll out to other informal settlements all over the country. Even during the early stages of the project, the excitement in the community is evident: community members have taken action and begun to clear the rubbish from the streets in preparation for the coming development. This was inspired by a community workshop they attended, which informed on climate change, the dangers of pollution and the risk factors their community faces due to their flood-prone location, the large amounts of human waste, and the lack of vegetation in the area.

When asked what she hopes to see in her community once these interventions take place, Johanna says: ‘One day Onyika will look like a town, not like it is now, but a real town, and this will make me so happy.’

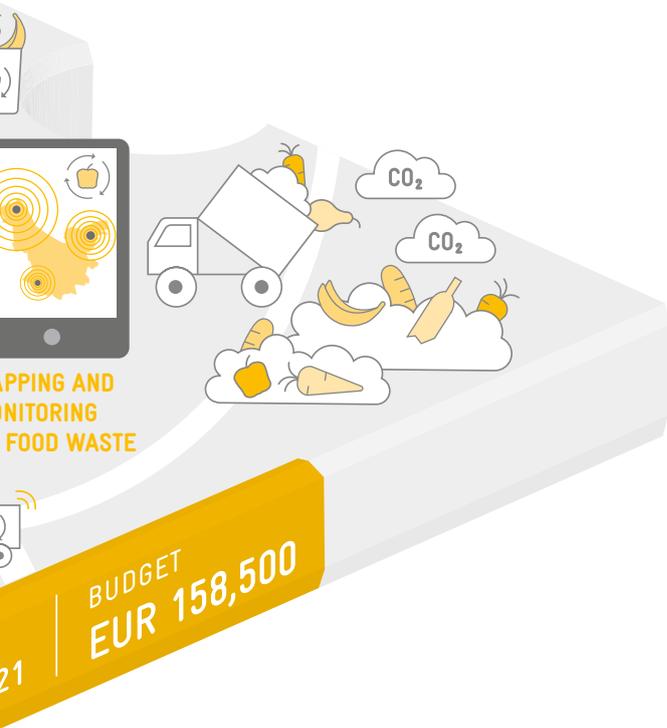
SERBIA: THE FOOD SHIFTERS



The Food Shifters is an Urban Living Lab that aims to **introduce a voluntary scheme for sustainable food waste management in the city of Belgrade**. The use of digital technology is key for achieving this through designing a digital platform and tailor-made apps for different users. The Urban Living Lab assumes that this will result in **reduced environmental damage from food waste** while also providing socio-economic benefits such as **food security**.

Most importantly, this Urban Living Lab works with a **multi-stakeholder cooperation** approach to help groups such as vulnerable women, restaurant owners, NGOs and other neighbours to redistribute food waste. The idea of a circular economy is core to this approach. Due to the COVID-19 pandemic, food insecurity in the Savski venac municipality increased, emphasizing the relevance of the Urban Living Lab's activities not only in terms of climate change, but also as a social responsibility.





Due to the fact that restaurants are the main pillars for the distribution of food surplus and most of them had to remain closed for more than a year during the pandemic, the data on food stocks was significantly lower. Therefore, the implementation period was extended to engage more stakeholders in the meantime and allow for a longer testing phase of the developed digital platform.



WHO

City of Belgrade, Municipality of Savski venac, local NGOs and public utility companies.

WHAT

The Urban Living Lab intends to prototype an Innovative Scheme for Sustainable Food Waste Management in Belgrade.

WHEN

July 2019 – April 2021

WHERE

Belgrade's Savski venac neighbourhood

WHY

Introduction of a voluntary scheme for sustainable food waste management in Belgrade through the use of digital technology for reducing greenhouse gas emissions from food waste and improving food security for vulnerable groups.

GERMAN DEVELOPMENT

COOPERATION PARTNERS

[Climate Sensitive Waste Management \(DKTI\)](#),
[CityRegions2030](#)

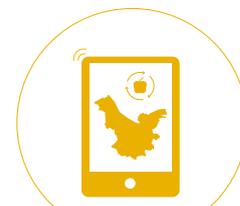
BUDGET

108,500 euros

50,000 euros co-funding by UNDP



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A digitalised food monitoring system will help to improve food security

THE URBAN LIVING LAB: APPROACHES, ACTIVITIES, ACHIEVEMENTS

Creating the Urban Living Lab

In Serbia, around 770,000 tons of **food are wasted each year. This food waste is causing serious environmental and socio-economic problems.** Since most of the country's waste is landfilled, each ton of food waste has a large CO₂ footprint with up to 580 kg CO₂ per ton. Food insecurity is a serious challenge, especially for vulnerable women in urban areas such as in Savski venac in Belgrade. People suffering from food insecurity often work as informal waste collectors, searching for food leftovers among the waste.

The GIZ country programme Climate Sensitive Waste Management (DKTI) consults the Serbian Ministry of Environmental Protection on the implementation of circular economy-oriented waste management policies. The project also introduces innovative models in cooperation with partners and best practices of circular economy-oriented waste management at local level to mitigate green-house gas (GHG) emissions. The CitiesChallenge 2030 presented great potential for the DKTI project to develop and implement an innovative digital tool for participatory waste management.

This Urban Living Lab sought to tackle the **lack of systematic monitoring of the food waste chain and improve food**

waste collection and redistribution. The idea was that food from retail that is still suitable for consumption will be distributed among vulnerable groups through better food waste management. This will enable overall food waste to be reduced, and for waste collection to be organised in a more efficient manner. In combination with capacity and awareness building, a **digitalised food monitoring system** will help to improve food security in Belgrade, while also reducing the CO₂ footprint of food waste.

An effective food waste management system needs integrated solutions. Therefore, this Urban Living Lab aimed to **involve all relevant stakeholders across different sectors.** During participatory workshops, stakeholders were able to address their concerns and ideas regarding food waste management in the city. Based on questionnaires and workshops, a baseline was created that will enable a better understanding of the key challenges and needs for a digital platform, as well as for capacity management.

The COVID-19 pandemic has once again shown how important the issue of food security is in an urban context and that the added value for the use of digital media confirms the Urban Living Lab's objective. The development of a simple platform that is accessible to all population groups increases the participation of the poor in society and strengthens their independence.





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TAKING CLIMATE
ACTION IN CITIES

ECUADOR:
THE GUARDIANS
OF THE HILLS

JORDAN:
URBAN
MICRO-LUNGS

NAMIBIA: CLIMATE-
SENSITIVE URBAN
DEVELOPMENT

SERBIA:
THE FOOD
SHIFTERS



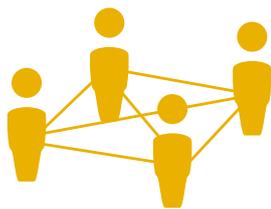
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“Usually, it is considered that the tavern is not good if the portion is not large enough, as this is what guests would normally think. (...) One portion often includes 250 grams of meat. Personally, I have never eaten that much.”

Marko Topisirović, Chef at Belgrade’s Mala Avala restaurant



Activities

The Food Shifters Urban Living Lab focused on multi-stakeholder cooperation and capacity development to improve the food waste management system in Belgrade. This approach helped to set up a digital circular distribution system of food waste. Savski venac was selected as a pilot municipality specifically because it represents many large food generators such as restaurants, schools and hotels, while also hosting several vulnerable groups and women acting as informal waste collectors.

1. Multi-stakeholder analysis for a baseline assessment
2. Digital platform for food surplus and food waste management
3. Capacity Development



MULTI-STAKEHOLDER ANALYSIS FOR A BASELINE ASSESSMENT



As a first step, the Food Shifters Urban Living Lab and the Centre of Excellence for the Circular Economy analysed the **food waste chain in Belgrade**. Together with city government officials and the Chamber of Commerce, questionnaires and workshops were set up to **establish a baseline for food waste on a specific day in Belgrade's Savski venac area**.

The **main stakeholders along the food waste chain** included retailers, restaurants, hotels, catering businesses and public institutions such as hospitals and kindergartens. The NGO OsnaZena, which provides support to vulnerable groups like female victims of violence, was part of the search for solutions for food redistribution. Public utility companies responsible for waste collection were also invited. Through **digital mapping**, clarity about food waste generators and food redistributors in Belgrade came about.

For the target area of Savski venac, several venues were selected for the measuring of food waste, including restaurants, bars, coffee shops, fast-food services, hotels, a kindergarten, a school and a hospital. Data on the number of employees, guests, meals and food surplus each day, as well as information on existing schemes of food distribution and waste collection, was gathered for one selected day. The baseline showed that **up to 30 percent of available food on that day became food waste**, partly due to surplus from large serving portions.

After establishing this baseline, the Urban Living Lab also conducted **interviews with food waste generators**. All interviewees agreed that waste collecting dynamics, an inadequate size of collecting containers and small waste disposal areas presented significant challenges. Food waste generators showed a willingness to get involved in the food surplus collection chain, but also showed certain **expectations for support from state authorities**.

DIGITAL PLATFORM FOR FOOD SURPLUS AND FOOD WASTE MANAGEMENT ASSESSMENT

Based on the insights gathered from the baseline and subsequent interviews and workshops, the Urban Living Lab set up a **voluntary scheme for the prevention of food waste and the redistribution of food products**. Here, local organisations and women's groups gave important input on the needs of vulnerable groups and on existing redistribution schemes based on volunteer work. Ultimately, the aim is to **set up a digital platform for food surplus and food waste management**.

With the initial support of Telekom Magenta in the design thinking process, the digital platform was implemented by a local IT-company. The goal was to create **one centralised platform and app for all value chain actors**. The platform identifies, maps and monitors the main food waste generators in the city, including detailed information on the respective waste amounts, composition and potential for reducing greenhouse gas emissions. It is also expected that as a result, these prevention measures will help decrease food waste. By **providing real-time information to all stakeholders**, food donations and waste collection routes can be planned in a more efficient manner.

CAPACITY DEVELOPMENT



The baseline and input from participatory workshops also served to **provide important information on food waste to all stakeholders along the food value chain** for the development of the app. This includes consumers, whom the Urban Living Lab targets through awareness building campaigns. There will also be an open invitation for voluntary citizen engagement.

Additional **information campaigns**, supported by local organisations campaigning for women's rights, and capacity development trainings help to avoid food waste, as well as the social and climate impacts that come with it. One target group for the Urban Living Lab's capacity development activities were **small and medium enterprises**, who often generate large amounts of food waste.



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Key achievements

The Food Shifters Urban Living Lab supports the City of Belgrade and its Secretariat for Environmental Protection in achieving the 2030 Agenda by **interlinking environmental and socio-economic aspects of sustainable urban development**. By creating effective digital solutions for the sustainable management of urban food waste, Belgrade will be able to **significantly reduce its CO₂ footprint of food waste**. A reduction in the quantity of landfilled waste from food waste leads to an overall reduction of greenhouse gas in the city, contributing to SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action).

Aside from these achievements at the environmental level, the Urban Living Lab has an important impact on vulnerable groups in Belgrade, particularly on women and children suffering from food insecurity. By **providing them with food options that are easily available through digital tools in**

a dignified manner, SDG 2 (No Hunger) is being met. The provision of food security also empowers women to look for different employment opportunities. Rather than picking food waste as informal workers, they can apply for other jobs, which is important for SDG 5 (Gender Equality).

Another positive consequence of the systemic solution to food waste management from the Food Shifters Lab has been the **improved operations of small and medium enterprises in Belgrade**. The collection fees of private food waste operators have decreased, lowering costs for food waste collection. At the same time, **citizen awareness and involvement in food waste management has risen**, contributing to SDG 12 (Responsible Consumption and Production). Both the Ministry of Environment and the Mayor of Belgrade have shown to be political partners, making implementation of the circular waste management system realistic to scale beyond Belgrade and contributing to SDG 17 (Partnership for the Goals).



Achievements of The Food Shifters Urban Living Lab

1. This presents the first time that food waste in Serbia has been analysed in a systematic manner, making restaurants and supermarkets reflect on the value of food and the different potential uses of food waste.
2. A multi-stakeholder digital platform to manage food waste at the city level is a novelty in Serbia and German development cooperation. The system holds a lot of potential for replication in other Serbian cities and countries of South East Europe.
3. The Urban Living Labs demonstrated ways of adapting pandemic through keeping up partner involvement and stakeholder participation with virtual workshops and interviews.





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TAKING CLIMATE
ACTION IN CITIES

ECUADOR:
THE GUARDIANS
OF THE HILLS

JORDAN:
URBAN
MICRO-LUNGS

NAMIBIA: CLIMATE-
SENSITIVE URBAN
DEVELOPMENT

SERBIA:
THE FOOD
SHIFTERS



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“Urban development must be based on principles of sustainable development, on a green and circular economy, and on sustainable planning which will take into account projections of climate change and the application of modern information technologies.”

Miroslav Tadić, UNDP

The Way Forward

The Food Shifters Urban Living Lab ties in with a number of strategic documents: the National Waste Management Strategy of Serbia, the National Waste Management Plan, the Waste Prevention Programme, the Local Waste Management Plan of the City of Belgrade 2011–2020, the EU Waste Framework Directive, the EU Action Plan for the Circular Economy and many others. **Support from the local and national government** inevitably allows for the scaling up of this prototype waste management system. GIZ also supports the implementation of climate-sensitive waste management practices together with the **Climate Smart Urban Development** project that is implemented by Serbia’s Ministry of Environmental Protection and UNDP. The **develoPPP GIZ project** focuses on the policy aspect of food chain management and has also supported the Urban Living Lab.

In order to improve the system’s sustainability in the longer term, the Urban Living Lab is cooperating with **Serbia’s Centre for Excellence for Circular Economy and Climate Change**, which includes several universities, professionals, institutions, businesses and city networks. By also including civil society organisations such as the women’s support group **OsnaZena**, the Urban Living Lab ensures that women are more supported in their role as the main providers for large families in the future, that the population can take ownership of the issue of food scarcity and sustainable food waste management, and that they themselves are ultimately beneficiaries and agents for change – ultimately leading to a sustainable development.

Technological partners are another important factor in ensuring the sustainability of the Food Shifters Urban Living Lab. **EsoTron Ltd**, a company for collection and treatment of organic waste and used cooking oil, is testing new bio-booster technologies for the production of high-quality energy fuel from organic waste. This research will further support the circular economy in Serbia. Interest has already been expressed by major delivery services to join the platform.

The Food Shifters Urban Living Lab intends to **contribute to a revised Local Waste Management Plan for the City of Belgrade**, thus applying the experience from the district level in Savski venac to the country’s capital. At the national level, lessons learned will **influence Serbia’s Programme for a Circular Economy**. In addition, there are plans to design widely available guidelines for the treatment of biodegradable kitchen waste from the food preparation and serving.

Given that the reduction of biodegradable waste is an important criterion for **EU accession**, sustainable food waste management will remain a high priority in terms of policy for Serbia. The Urban Living Lab not only contributes to better food waste management, but also towards the establishment of a circular economy and the provision of data for the achievement of food security on a national level. By **prototyping a digital waste management system on a smaller scale**, important lessons can be learned and then applied when scaling up its efforts.





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SURPLUS FOOD CAN SAVE LIVES

Marija Jovanović (33) and Ljubica Kovačević (46)

Serbians like to say that bad luck never walks alone. Sadly, many women in the country could confirm this. Particularly women from minority ethnic groups are often confronted with a combination of domestic violence and other challenges such as poverty and its most severe consequence: the lack of food.

This is why the project Food Shifters, with its idea to collect surplus food and distribute it to vulnerable groups of women, is perfectly aimed at those women suffering multiple strings of bad luck. The following excerpts from interviews with marginalised women from Belgrade corroborate the importance of tackling food insecurity:

‘I came back to live with my parents who are elderly and ailing and who receive very small pensions; we live in a rented flat,’ says M. J., a 33-year-old woman from Belgrade. ‘Three adults and my two small children – it is impossible to feed them the whole month, especially as the children always need something. And these things are very expensive.’ M.J. used to live with a man who was a hardened gambler, and who was violent towards her on several occasions. Shortly after giving birth to her second child, she managed to run away, assisted by her neighbours.

Lj. K. (46), also from Belgrade, belongs to the Roma community. She emphasises that she is proud of her origin, while also detailing her challenges to provide food: ‘We mostly lack fresh milk for the children and quality food, at least for the young ones. There are many to feed, and we are often not able to cook a single proper meal a day, even though we do our best and do whatever we can. Potatoes are cheap, and so is flour, you can make different things with them and they can keep. But there is no fruit, no vegetables...that is what we all need.’

When talking about finding food, she says: ‘I am not ashamed to do honest work. I don’t want to steal, but I am not embarrassed to pick things people have thrown away. People will throw away lots of things, many of which can be used for me and my family. The only problem is that people will call you different names when you are looking for things on the street, or when asking them for help or work. I am Gypsy, so what! But I am honest. It is terrible what they do to us and how they regard us all without any empathy.’

She lives in a house with no running water, but she says that the most important is to have a roof over their head. They mostly use water from their neighbour’s house. She has three daughters and nine grandchildren. They all live together, including the partner of one of them. One of the daughters and her husband have permanent jobs and average salaries. Others do temporary jobs, circumstances permitting. ‘Together with this other household, we regard ourselves as one large family. They have the head (an older male family member), but there are also a lot of women – seven, not taking children into account. We help each other as much as we can, but this is not enough.’

All participants in the project, focus groups, interviews and workshops contributed significantly to understanding which models could potentially facilitate the dignified distribution of surplus food.

‘I need a job; the baby is young and we need clothes and food... we are not asking for much. Women from the organisation support me as much as they can, and I think it is important that there is a manner in which food-stuffs could be donated. At least something, so that we can make it to the end of the month. I am grateful for any type of assistance, and I know that I would like to be able to give back sometime,’ says M. J. from Belgrade.

Unlike M.J, the family of the 46-year-old Roma woman needs food, including fresh fruit and vegetables, every day. They would prefer to cook it by themselves, saying that this way they are sure they could cook more,

but they would not be opposed to occasionally getting a sufficient number of portions from a restaurant for example.

These interviews show the importance of collecting surplus food and distributing it in a dignified manner according to different needs. In some cases, it is necessary to consider working hours. In others, the possibility or impossibility of leaving home has to be respected. Women may feel embarrassed, stigmatised or even threatened by organisations they do not trust. All these factors must be taken into consideration in order to create a high-quality, equal and humane redistribution of surplus food which can save lives.

“Three adults and my two small children – it is impossible to feed them the whole month, especially as the children always need something. And these things are very expensive.”

Marija Jovanović, 33-year-old woman from Belgrade



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Learning from the CitiesChallenge 2030 – Cities Matter!





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INTEGRATING URBAN DEVELOPMENT AND CLIMATE ACTION

All four Urban Living Labs took a holistic approach in their activities. Rather than focusing on individual goals, they gave priority to the overarching principles of the 2030 Agenda, especially two of them: the interconnectedness and indivisibility of the SDGs and the principle of Leave No One Behind. Within the CitiesChallenge 2030, applying these principles generated added value through involving relevant local actors and stakeholders, articulating various disciplines and government levels, as well as addressing functional interlinkages between different spatial areas. As unique prototypes, the Urban Living Labs allow for their innovative methodology and results to be replicated at a larger scale, which stands as the ultimate goal of the CitiesChallenge 2030.



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Looking back at the criteria for project selection

The CitiesChallenge 2030 and its four Urban Living Labs demonstrate unique approaches and ambitious prototypes for implementing the global agenda at the local level. Moreover, the Urban Living Labs were strongly aligned with 2030 Agenda's Sustainable Development Goals (SDGs) and the Paris Agreement, while also ensuring that its implementation was applied in a way that was relevant to the local context. Indeed, by meeting local needs through an action-guided agenda, their work highlights valuable lessons learnt.

The overall topic for the CitiesChallenge 2030 was the intersection of urban climate action and the implementation of the 2030 Agenda at the local level. The Urban Living Labs were therefore asked to illustrate the powerful and creative ways in which cities are implementing the global agenda and driving sustainable development within the local context. This broad focus attracted 30 applications from 13 different countries to become an Urban Living Lab.

The four Urban Living Labs were chosen by the selection committee based on their commitment to:

- Showcasing the relevance of the SDGs in a local and urban context
- Integrating urban development and climate-relevant action
- Fostering inclusion through a multi-stakeholder approach at the local level
- Creating potential for replication and scaling up

All four Urban Living Labs also worked on key cross-cutting themes such as gender equality and digital solutions. This chapter will list their achievements, focusing on innovative approaches, methodologies and project results, before detailing how their experiences could be used in the future. Local implementation of the 2030 Agenda: cities matter!

The five key principles of the 2030 Agenda



Universality



Leave No One Behind



Inclusiveness



Multi-Stakeholder-Partnerships



Interconnectedness and Indivisibility



Rapid urbanisation in developing and emerging countries calls for working closely with cities in order to achieve goals for sustainability, as well as for the adaptation and mitigation of climate change. The local implementation of the 2030 Agenda is of particular importance when considering that **two thirds of all SDGs can only be achieved at the local level**. The Paris Agreement also recognises the special significance of cities and local authorities in implementing a more climate-friendly approach to urban development.

The four selected Urban Living Labs were located in Ecuador, Jordan, Namibia and Serbia, and focused on local neighbourhoods in Portoviejo, Amman, Windhoek and Belgrade respectively. By **creating prototype projects in close cooperation with local change agents**, the Urban Living Labs fostered both innovation and local entrepreneurship. They also demonstrated the relevance of the SDGs and climate goals within an urban context. Ultimately, these four prototypes hold the potential to be replicated and scaled up within national or subnational strategies for sustainable urban development or in programmes of German development cooperation.

The broad focus of the CitiesChallenge 2030 enabled a **great diversity of topics** to be explored within the four Urban Living Labs – ranging from resilient public spaces to urban greening, circular economy and food security. Each project covered several SDGs at once, which demonstrates a holistic approach towards implementing the 2030 Agenda. At the same time, they also covered the five key principles of the 2030 Agenda: **Universality, Leave No One Behind, Inclusiveness, Multi-Stakeholder-Partnerships, Interconnectedness and Indivisibility**.

For the CitiesChallenge 2030, **the interconnectedness of the SDGs and the principle of Leave No One Behind holds particular importance**, as it aligns with the values of German development cooperation. Each of the four Urban Living Labs showed its commitment to those two principles:

- In **Ecuador**, the Guardians of the Hill Urban Living Lab focused its approach on gender through empowering women, while also targeting other disadvantaged groups such as children and the elderly.
- In **Jordan**, the Urban Micro-Lungs Urban Living Lab supported vulnerable groups across all ages by providing access to green space and improved air quality in disadvantaged areas of Amman.
- In **Namibia**, the Climate-Sensitive Urban Development Urban Living Lab focused on inviting disadvantaged population groups from the informal settlement of Onyika into the decision-making process, building on the formalisation of land rights, which provides more security for residents.
- In **Serbia**, the Food Shifters Urban Living Lab benefitted vulnerable women who suffer from food insecurity by redistributing food waste, while also reducing CO₂ emissions from biowaste.

Making cities and human settlements inclusive, safe resilient and sustainable

Cities and city-regions are growing at a fast pace and so are their political and administrative borders. In the four Urban Living Lab cities, urban demands, environmental degeneration and climate change have all resulted in an urgent need for new and improved as well as green and sustainable infrastructure and services. Without such infrastructure, it is unlikely that cities can meet the ambitious goals of the Paris Agreement or make progress towards the SDGs.

With this in mind, government institutions worldwide face a considerable number of challenges at the local level including:



Prevailing urban governance and management practices, whereby resources such as water, energy and environment are managed in isolation by their respective sectoral departments, have led to inefficient infrastructure systems and land use patterns at city regional levels. This has led to economies of scale being unused and a waste of natural resources. More than ever, urban actors recognise that the way forward lies in an integrated approach towards urban development, natural resource management and balanced socio-economic development. This will enable them to work at urban-rural-linkages as well as the inter-dependencies between sectors in the most sustainable way.

In this light, the CitiesChallenge 2030 calls for urban climate action and localising global frameworks such as the 2030 Agenda and Paris agreement. It also calls for holistic and integrated urban solutions to reach sustainable transitions, resilience, social cohesion and good governance. Such an ambitious vision is impossible to achieve without integrated urban development.

What is integrated urban development?

Integrated urban development is a holistic approach that takes into consideration social, environmental and economic impacts with regard to the four following dimensions:

- **Relevant actors and stakeholders:** integrating citizen participation and involving civil society organisations, as well as bringing together various local authorities, experts in different disciplines, actors from the private sector and research institutions for strategic collaborations.
- **Strategic urban sectors and services:** integrating practices such as combining municipal solid waste management with climate-friendly energy production, or applying a holistic approach to the development of solutions at the interface of energy, mobility, architecture and ICT.
- **Multiple government levels:** integrating the implementation of measures at different levels of governance so that local activities, strategies and policies align with those at the regional and national level. This also includes pursuing dialogue between different government levels, as well as sharing experiences and good practices for replication and integration in respective policies and plans.
- **Different spatial areas:** establishing cooperation among neighbouring municipalities, strengthening linkages between urban, peri-urban and rural areas, and creating governance structures at the metropolitan level for intermunicipal coordination and joint delivery of public services such as public transport services.

These four dimensions do not need to all be addressed at the same time or to the same extent in order to achieve integrated urban development. However, **the impact on each dimension should be considered in planning activities and urban management**, as they all hold possible synergies, potential negative consequences and trade-offs. The four Urban Living Labs focused on a selection of these dimensions. However, they all followed an integrated approach by taking the different dimensions into account and linking them in all their activities.

Relevant actors and stakeholders

Working at the local level is key to improving resilience and climate adaptation in cities. To ensure collaboration among local partners, the four Urban Living Labs reached out to various stakeholders. In Ecuador for instance, the University of San Gregorio collaborated with municipal service providers such as the emergency services and the private sector in the development of the early warning system. In Serbia, a wide range of actors including public administration, civil society organisations and academia, private sector and international development organisations all worked together to maintain excess food in the consumption cycle and reduce pressure on waste disposal plants creating an impact for urban development and climate action at the city level.

In all Urban Living Labs, local **communities were the key stakeholders**, underlining the importance of the Leave No One Behind principle. Here, the participatory methods used in Namibia led to interesting lessons learnt for sparking innovation and putting ideas into practice. This was due to the integration of a wide range of partners from community practitioners, architects, transport experts and town planners that were involved.

Strategic urban sectors and services

Urban development and climate action are **not focused on one single sector for urban services**. Therefore, the Urban Living Labs drew from different sectors such as risk and disaster planning, public and green spaces, land rights and food waste management in order to ensure sustainable and resilient outcomes. The example of Jordan shows the **multi-dimensionality of the Urban Living Labs**: Planning, construction and maintenance of the urban micro forests required the successful collaboration of different sectors. The effect of the forests, assuming the prototype is significantly replicated in the urban area, will not only be clearly visible in the environment, but also in indicators of urban health and air quality. In Namibia, sectors such as water management, urban waste and public space also came together to convert a dump site into an open space that tackles climate challenges and improves liveability.



Multiple government levels

Each Urban Living Lab was supported by various levels of government. In the interest of sustainable development and climate action for resilience, **policy alignment, dialogue at different government levels and the transfer of experience** were all key priorities for the CitiesChallenge 2030. In Ecuador, the San Pablo Parish Council was the immediate contact point, while the Portoviejo City council also supported the activities. As a result of this multi-level cooperation, the Urban Living Lab was able to **share its experiences and results with partner ministries at the national level**. In Jordan, valuable lessons can also be drawn from the Urban Living Lab's experimental activities. **Training municipal employees** to maintain sites and publishing the 'Urban Lungs Implementation Manual' proved to be successful approaches towards the integration of activities at different government levels. This **knowledge transfer** has proven to be one of the best ways to secure multi-level governance for the Urban Living Labs and their collaboration partners.

Integration of different spatial areas

While the Urban Living Labs serve as prototypes within a clearly defined neighbourhood, they also offer many insights for replicating practices in different spatial areas. Each Urban Living Lab documented results and lessons learnt which would **facilitate a further scaling up to other areas**. This was particularly successful in Jordan, where the potential for possible replication of the Urban Micro-Lungs was discussed from the beginning. As a result of these discussions, the innovative Miyawaki method will soon be applied to rehabilitate other sites in Amman. Additionally, this Urban Living Lab, as well as the experience from Belgrade, put the **interlinkage between urban and rural development** on the agenda, re-using compost from rural communities in Jordan or pointing out the importance of urban food security and food waste management for sustainable and climate-friendly urban development in Serbia.

The Urban Living Lab in Portoviejo, Ecuador, showcased how apparently **distant neighbourhoods are in fact closely connected spatially**, despite strong socio-economic and functional differences. Here, the prevention of landslides in a normally ignored, underserved settlements at the urban periphery such as San Pablo contributes to avoiding the regular flooding of inner-city business districts.



CO-CREATION THROUGH MULTI-ACTOR PARTNERSHIPS

Partnership is an essential component of the 2030 Agenda. It is represented by its own goal, **SDG 17 (Partnership for the Goals)**, as well as by 2030 Agenda's key principle of multi-stakeholder partnerships for mobilising and sharing knowledge, expertise, technology and financial resources, to support the achievement of the SDGs in all countries.

Partnership is therefore an integral part of the CitiesChallenge 2030, which calls upon country projects to enter new partnerships or establish new forms of collaboration to enable participation and promote co-creation. In particular, the CitiesChallenge 2030 emphasises SDG 17's targets including capacity building, technology and knowledge exchange, as well as multi-stakeholder partnership and policy coherence.

As part of the CitiesChallenge 2030, the four Urban Living Labs were able to forge new and stronger partnerships between GIZ Programmes usually working with political partners at the national level, with **new sectors and governmental partners from subnational levels**. In Jordan for example, various sectoral city departments were included, whereas in Serbia, the first cooperation between GIZ and the City of Belgrade was established. In Namibia, a partnership with other GIZ projects and the local government helped to support the formalisation of land rights. Both in Serbia and Ecuador, academic partnerships came to life, adding UNDP as a multilateral partner in the case of Belgrade. These new forms of cooperation and partnerships are particularly important given that often, these different sectors and actors do not work together.

Another important lesson that can be drawn from the Urban Living Labs is that **different partners are each best suited to fulfil certain tasks and responsibilities** at different stages of the project. Such a range of actors has enabled the Urban Living Labs to cover different aspects and topics, as well as raise awareness among various sectors and areas, and to better disseminate results and information. Ultimately, multi-actor partnerships enable the activities to have a broader impact and allow the Urban Living Labs to continue in terms of sustainability after the GIZ intervention.

Based on the experiences of the four Urban Living Labs, recommendations for engaging different stakeholders at different project stages can be identified. This is not to say that other actors cannot also make valuable contributions in each of the respective steps where they are not highlighted. It is also important to keep in mind that these results must be adapted to the local context, and therefore may vary from this general overview gained from the CitiesChallenge 2030:



How and when to engage different stakeholders?

- **Project design:** At this stage, the country project is responsible. Based on discussions with partners and collaboration with the private sector, specific technical aspects can be addressed in the project design. A close cooperation with civil society actors has also proven important as it allows the country project team to learn more about local needs and characteristics.
- **Planning:** Here, the Urban Living Labs included beneficiaries and disadvantaged people from the target group from the beginning to create transparency, commitment and ownership. In addition, they collaborated with experts from different sectors, from academia and from the private sector, which allowed the project scope to be extended by considering synergies and interactions with existing, planned and future activities.
- **Innovation:** The four Urban Living Labs relied on close collaboration with a local key partner and the city administration, which allowed for advanced and promising proposals. In particular, private sector actors such as Tayyun in Jordan, stood out for developing and promoting innovative measures and introducing new technologies or processes.
- **Implementation and maintenance:** This project stage is ideally carried out jointly by a large number of actors. The Urban Living Labs agreed that the allocation of clear tasks and responsibilities to partners from the beginning ensures efficient implementation. Importantly, firm agreements are necessary for both the implementation of the planned measures and for their maintenance. For this, the technical preconditions must be created at an early stage and the legal basis must be signed.
- **Capacity building and knowledge sharing:** To build capacities on thematic aspects like climate change, science centres (as in Namibia and Serbia) and thematic foundations (as in Ecuador) can be involved. The Urban Living Labs in Ecuador and Serbia have also shown that involving business associations and civil society organisations helps to bring in diverse stakeholders and businesses at this stage. This, in turn, supports the dissemination of knowledge in their respective networks.
- **Policy development:** For integrating the Urban Living Labs in a city context, a close cooperation with the city administration proved to be fundamental. Here, the implementation of the Urban Living Labs through GIZ country programmes with existing partners enabled the distribution of learning experiences at a country level, as well as the incorporation of results in ministerial strategies and policies. Furthermore, the collaboration with other international development organisations such as UNDP Serbia strengthened the power of political consultation.

View on German Development Cooperation

The expectation to the CitiesChallenge 2030 by the partners were met and often even exceeded. Specifically, partners stressed out the unique methods and approaches applied as well as the efficient utilisation of local materials and resources. The implementation is seen very successful, especially with regards to integrating a broad range of stakeholders from various areas and sectors. German development cooperation, and the GIZ as the implementation organisation in particular, is regarded as reliable partner committed to achieve the project objectives and outcomes in a timely manner. The great ability to keep momentum of progress even under exceptional circumstances and the

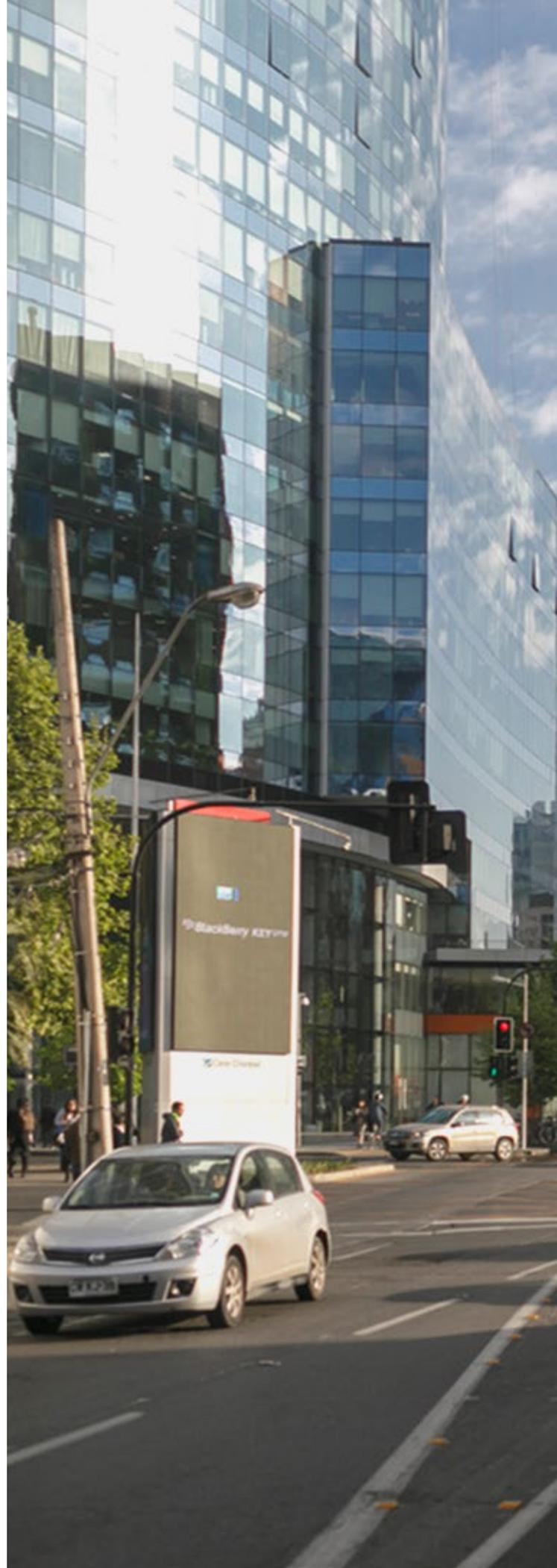
restrictions related to the COVID-19 pandemic was highly regarded. While established partners from the city administration and national government stated that cooperation was strengthened through Urban Living Lab, new partners from civil society and the private sector were pleased about initiating a fruitful partnership that brought unique outcomes and established new opportunities for participating in urban development processes. The horizontal cooperation facilitated by GIZ was particularly welcomed. The Urban Living Labs provided an innovative platform which brought together and connected a great mix of actors who contributed valuable input and ideas.

SCALING UP THE URBAN LIVING LABS: POTENTIAL FOR REPLICATION

The scalability of the Urban Living Labs was one of the four important criteria for selection, along with their relevance to the SDGs, integrated approach to urban development and climate action, and local implementation with multiple stakeholders.

Even before the Urban Living Labs completed their implementation, their potential for replication became apparent. Participants learnt the importance of fostering sustainability, partnerships and contractual agreements early on in order to orient their activities towards scaling up in the future. These experiences also showed that it is particularly helpful to design activities in line with local urban strategies and action plans.

- In **Ecuador**, the compiled systematisation of the process with all activities will be used by the municipality of Portoviejo in order to explore further places to work with this methodology. The new country programme builds on the experience of the CitiesChallenge 2030 and will follow a similar approach to the urban laboratories.
- In **Jordan**, the Greater Amman Municipality committed to maintaining the Urban Micro-Lungs activities. It will further spread the use of new agricultural methods learnt from the Urban Living Lab. This will lead to the creation of more urban micro-lungs in Amman.
- In **Namibia**, the formalisation of land rights has created ownership for the target group, resulting in enhanced responsibility and awareness about the urban environment. As a result, this has also led to improved maintenance of public facilities.
- In **Serbia**, there are plans to transfer the system, once based on a voluntary scheme, through cooperation with the National Alliance for Local Development, to Ministries or Local Self Governments that have jurisdiction on food waste management.





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INCREASING
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INCREASING IMPACT: GENDER AND DIGITALISATION

The CitiesChallenge 2030 called for the integration of different cross-cutting themes in the four Urban Living Labs in addition to the main themes of urban climate action and Leave No One Behind. Gender equality and digitalisation in particular are topics that are addressed at different levels in the 2030 Agenda. **Gender equality** may be a specific goal (SDG 5), but along with digitalisation, it is an overarching theme **required for achieving all of the SDGs**.

In the CitiesChallenge 2030, both themes were therefore set as optional and cross-cutting. While they were not mandatory criteria, the applicants could increase their chances of selection by integrating them as part of their vision. Many of the projects that participated in the challenge chose this option, although understanding of these themes and the extent to which they were integrated varied. In particular, the **promotion of disadvantaged groups** should not be seen as a simple add-on to increase the reach and impact of the Urban Living Labs, but rather, as an integral part of any measure to enable holistic solutions. Digital solutions should not be developed for the sake of digitalisation, but as a vehicle for greater impact, efficiency and transparency.

The four selected Urban Living Labs stood out for their successful integration of gender equality and digitalisation, each focusing on different aspects of these themes.





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Gender equality

The Urban Living Lab in Ecuador placed particular importance on empowering women. In Ecuador's Urban Living Lab, women became guardians of their neighbourhood, acting as a voice for the municipality and service providers. This strengthened their role and position in the local community, which was particularly important during the COVID-19 pandemic given its detrimental impact on vulnerable women. In Serbia's Urban Living Lab, gender equality also played an important role. Women were the main target group of the food waste redistribution platform, which is designed around access, usability and safety.

In Jordan, the Urban Living Lab addressed exclusion on a broader level. Bringing together a range of actors, involving both women and men as equal partners and placing particular importance on the participation of women and girls allowed for fair access to project activities and guaranteed results.

Namibia's Urban Living Lab focused on gender equality by emphasising women's voices. After first analysing the local cultural specificities, participants were divided into groups during resident consultations. This allowed women to express their needs without being ignored or spoken over by men. The results of each group were then presented publicly so that they could influence decision-making. This influenced the decision to prioritise the storm water system and public open space, over the construction of a road – a choice favoured by many women.

Digital solutions

In Serbia's Urban Living Lab, digitalisation served as the foundation for the food waste redistribution platform as a digital tool. This solution was chosen to address various stakeholders in a simple way. Almost everyone in Serbia, including the urban poor, has access to the internet and mobile devices. A digital platform therefore supports the Leave No One Behind principle. The Urban Living Lab's strong digital approach generated interest from other stakeholders such as Deutsche Telekom, which participated in the design of the digital platform. However, further collaboration failed for administrative reasons, as Deutsche Telekom is not yet a network operator in Serbia. Nonetheless, this set an important precedent for digital collaborations with new partners, such as the international delivery service provider bring.com, which is now considering joining the redistribution system established in Serbia.

In Ecuador, the Urban Living Lab's digital platform for risk management has proven to be extremely useful not only in terms of climate risk monitoring and management, but also in light of the COVID-19 pandemic. Improved data collection and the option of digital risk management has allowed residents to better monitor major events related to infections and communicate them to the local community.

While digitalisation was not a focus of the Urban Living Labs in Jordan and Namibia, the innovative use of tools such as digital maps or social media groups proved to be helpful. They facilitated data collection, decision-making, and collective planning, as well as community outreach during the COVID-19 pandemic.



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ACHIEVEMENTS AND INNOVATIONS OF THE URBAN LIVING LABS

The CitiesChallenge 2030 set out to launch selected Urban Living Labs in four different countries to expand their scope and test new approaches. The idea was to promote innovative solutions and newly developed tools or approaches. This resulted in innovations both in terms of the methods used as well as the result. While these innovations were inspired by other existing projects, they had not yet been used within these local contexts.



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Which innovative methodologies did the Urban Living Labs develop?

Ecuador

The explicit focus on women's empowerment in Portoviejo paid off at several levels. For example, local women in the San Pablo neighbourhood became active community managers throughout the development of the digital early warning system. In this role, they provided a crucial link between the neighbourhood, the city administration and emergency services during the COVID-19 pandemic. Another innovation was the broad alliance of actors including the city administration, academia and civil society, as well as the National Association of Professionals in Risk Management.



Jordan

The selection process for urban micro-forest sites was cross-sectoral and enabled the City of Amman to obtain a detailed overview of potential sites for forests, as well as to discuss and agree on their use. Through extensive exchanges between the different agencies and external stakeholders, this fostered a common understanding, commitment and ownership of the selected sites and their dedicated use as forests.



Namibia

Citizen participation is nothing new, neither in German development cooperation nor in Namibia. However, the chosen participatory planning methods of transect walks and system circles represented a new approach within the local context. Through these methods, the spatial perception of the entire neighbourhood was made possible. Awareness of the interconnections between many everyday problems among residents could also be improved. The COVID-19 pandemic made it difficult to continue these participatory processes. However, the team was able to maintain public participation through small-scale consultations and digital processes. This close exchange made it possible to explain the abstract topic of climate change, especially in terms of its complex connections to urban development and its effects at the neighbourhood level.



Serbia

By analysing food waste, restaurants and supermarkets in Belgrade were able to address the amount of food surpluses and their value, as well as the cause behind the surplus and ways to reduce it in the first place. This enabled them to separate usable leftovers from waste, therefore utilising the surplus and reducing the overall amount of waste. This methodology also provided the necessary information to feed into the associated platform and app for redistribution of food surplus. Not only does this new system.





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CHALLENGE 2030 – CITIES MATTER!

CLOSING
REMARKS





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Which innovative results did the Urban Living Labs produce?

Ecuador



Digital early warning systems are common all over the world. In the local context of the San Pablo neighbourhood in Portoviejo, this was implemented for the first time. A special feature of the new warning system is the close involvement of the local population and the women acting as guardians in particular. The system was originally intended to provide warnings for heavy precipitation and landslides, but it was designed in such a way that it could be expanded to include warnings for other risks as well. Throughout the COVID-19 pandemic, the digital system was used to improve communication between city and emergency services and the local population, as well as to better coordinate operations.

Jordan



The most striking innovation is arguably the establishment of urban forests using the Miyawaki method in Amman. This method had never been tested in small urban areas before, and its successful implementation offers the potential for mainstreaming the micro-forest approach elsewhere. It would be especially suited to densely built-up cities in semi-arid climates worldwide. Protecting and maintaining these forests guarantees that they thrive, while monitoring them provides reliable information relevant for future forests.





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Namibia

Informal settlements are often insufficiently mapped, especially in African countries, which makes adequate risk management particularly difficult. Mapping the area in Onyika was therefore an important prerequisite for successful planning and implementation. The provision of land titles, although not directly related to the CitiesChallenge 2030, allowed for this initiative to be carried out in this way. It also allowed for the implementation of a housing scheme launched by the city. Most of the inhabitants chose to participate in the scheme, and now many houses are being built simultaneously to meet new demand. The CitiesChallenge 2030 supported the development of a storm water system and the conversion of a dump site into a public open space, accompanied by technical experts and engineers. The results contributed towards incremental wealth generation and are visibly reducing poverty and improving health and well-being in Onyika. The use of georeferenced climate forecasts, combined with community-based approaches to identify areas at risk and adapted resilience measures, shows great potential to be replicated by German development cooperation in other parts of the world.



Serbia

A city-wide digital platform for food waste management, used by local administration, producers and users alike, does not yet exist in Serbia or in German development cooperation. The system not only offers potential for expansion to other Serbian cities and in South-Eastern Europe, but also for its replication to other sectors, such as economic-financial incentive mechanisms.





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The Urban Living Labs are intended to serve as **prototypes for future projects**. They showcase the interconnectedness of 2030 Agenda, innovative ways to implement principles such as Leave No One Behind and opportunities for **implementing the SDGs at the local level**. The four Urban Living Labs highlight the importance of **integrated urban development**, focusing on both the SDGs and the Paris Agreement. The local implementation of activities through a **multi-stakeholder approach** and a strong focus on the community has proven to be particularly successful. The **potential for replication and for scaling up** is also evident, providing interesting results and findings to inform their successors.

Additional cross-cutting themes such as **gender equality and digitalisation** have enriched the Urban Living Labs and their results. Although not all of them focused on these cross-cutting themes or all elements of integrated urban development, the interconnectedness of different themes and relevance to the different SDGs became immediately clear.

While the COVID-19 pandemic caused many unforeseen challenges and delays, the CitiesChallenge 2030 kept its momentum and progress. In some cases, such as the early-warning system in Ecuador, the pandemic resulted in **unexpected innovations in addition to innovative methodologies and project results**.

Local partners stated that their **expectations of the CitiesChallenge 2030 were met and often exceeded**. They stressed the unique methods and approaches applied, as well as the efficient use of local resources. Overall, the impression of the Urban Living Labs and their implementation was positive across a broad range of stakeholders. German development cooperation and GIZ are regarded as reliable and committed partners. New partnerships and horizontal cooperation mechanisms received particular praise from participants and partners, and the four Urban Living Labs provided a useful platform bringing together a variety of actors who shared their input and ideas.

The Urban Living Labs hold valuable lessons for future projects. Whether in terms of German development cooperation, or the development cooperation activities of other countries, they provide useful insights for future use in policy advice and portfolio management. This is especially relevant when it comes to **adequately understanding and addressing the potentials and requirement of a more direct cooperation with cities and subnational governments**, beyond the usual partners at the national level. The next steps will need to ensure the maintenance and management of the infrastructure created in each Urban Living Lab, the replication of their methods, and the application of methodological approaches in country programmes.



The Urban Living Labs have also created **important lessons for the themes and services offered by GIZ and other development cooperation agencies**. Portfolio development is subject to bilateral government negotiations and **shaped by the reorientation and associated regional priorities of German development cooperation**. The Urban Living Labs contribute to the portfolio development serving as invaluable prototypes and examples of best practice, while also inspiring approaches that tackle urban development and climate action together.

Overall, the Urban Living Labs have shown that **the intersection with climate change is key for integrated urban**

development. As prototypes, they have targeted both the Paris Agreement and the various SDGs, showcasing the interconnectedness of these international goals while always keeping the Leave No One Behind principle in sight. Cross-cutting themes such as gender equality and digitalisation can further enhance the success of such projects. At the same time, cooperation and close collaboration between communities and various local actors are key for addressing the SDGs and the Paris Agreement at the local level.





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Closing Remarks





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This ePaper has shown the fruitful results of an ideas competition such as the CitiesChallenge 2030, and the lessons it can teach us to build upon future projects and Urban Living Labs.

The CitiesChallenge 2030 demonstrated that **cooperation with cities is necessary**. After all, half of the world's population is living in cities today, accounting for 80 percent of global GDP. At the same time, cities are responsible for almost 70 percent of global climate-damaging emissions and consume around 60 percent of energy. With this in mind, the international community has recognised the key role of cities in Sustainable Development Goal 11 and two thirds of all 17 Sustainable Development Goals can only be achieved in and with cities. Global climate targets can therefore only be achieved through sustainable urban development.

The connection between climate targets and development goals within cities is also reflected in the guiding principles of German development cooperation. The core area 'Responsibility for our planet – Climate and Energy' has made the field of urban development, including mobility, circular economy and waste management, one of its three priorities. Today, 30 percent of German technical development cooperation and more than 50 percent of financial cooperation already flows to cities. Due to rapid urbanisation, especially in partner countries in Asia and Africa, the issue of sustainable urban development will continue to gain importance in the future.

To enhance sustainable urban development within German development cooperation, we need integrated solutions across social, sectoral, administrative and spatial boundaries. A key solution is urban governance that involves all stakeholders, encourages cross-sectoral interactions and promotes coordination between levels of government along the urban-rural continuum. Working at the local level has also proven particularly effective in furthering sustainable urban development,

since local partners have a clear notion of both local potential and restrictions. This allows for the consideration of the people, history, built environment and natural resources of a specific area, creating the capacity to promote agreements on common goals, to ensure accountability and to build trust. Local cooperation can also foster synergies, encourage joint action and stimulate complementary investments of public entities, entrepreneurs, civil society and communities.

Cooperation between different levels of government and solid partnerships with stakeholders are vital factors in meeting the current and future challenges of urban development: expanding quality urban infrastructure, ensuring safe, sustainable and accessible housing and public spaces, preserving urban and regional ecosystems and protecting the global climate, to name but a few.

The CitiesChallenge 2030 and its Urban Living Labs in Ecuador, Jordan, Namibia and Serbia serve as good examples for the potential of urban strategies. They **have been tested and can be adapted to the local context, replicated, extended**



or even standardised both in technical assistance from German development cooperation as well as in local and national policies. Most importantly, the results of the Urban Living Labs highlight the value of integrated approaches to connect urban development with climate-relevant action and to foster inclusion through a multi-stakeholder approach at the local level. All four Urban Living Labs delivered very concrete examples for successful **methodological approaches**, such as empowering women as community managers, establishing a broad alliance of actors to fight the pandemic or encouraging cross sectoral and participatory planning. In the same way, the Urban Living Labs applied **innovative results** such as a digital early warning system for climate hazards and the pandemic, the Miyawaki method for urban biomass or the city-wide digital platform for food waste management.

In all cases, **local communities were the key stakeholders and beneficiaries**. The Urban Living Labs' contribution lay in combining their experiential knowledge and in mobilising their power supported by the technical expertise of academic and professional institutions. This also contributed to building competencies in cross-sectoral cooperation. The Urban Living Labs have therefore shown that their approaches can indeed be replicated. Lessons learnt can be fed into public policies and contribute to cross-sectoral alignment on the local and national level. Local partners have already found inspiration to use the results **as inspiration for ongoing and new programs of German development cooperation**.

Working directly with cities offers multiple options to increase the impact of German development cooperation and to accelerate the implementation of development and climate goals. Opening spaces for experimentation and co-creation with urban stakeholders is key for **establishing a dialogue between global agendas, national policies and local action** on how to collaborate towards a sustainable and climate-friendly urban transformation. The CitiesChallenge 2030 shows the potential

of cities in implementing both the 2030 Agenda and the Paris Climate Agreement.

Participating Urban Living Labs demonstrated a great ability to keep up momentum of their progress, even under exceptional circumstances and when facing restrictions related to the COVID-19 pandemic. They tell us tangible stories about the potential of urban strategies, their capacity to empower people, foster alliances among stakeholders and enhance coherent public policies and action. The Urban Living Labs not only serve as a vehicle for mainstreaming BMZ's policies in the field of urban development, but also provide a **'reality check' for effective policy-making**. Their results contribute to the development of methodological approaches for a more effective implementation that can be scaled up and considered when designing new programmes.

In summary, the **CitiesChallenge 2030 has made BMZ's guiding principles for sustainable and climate-friendly urban development both visible and tangible**. It illustrated the vision of a city worth living in. At the same time, the lessons learnt for each Urban Living Labs will continue to contribute to policy development. These learnings make the range of services offered by German development even more **needs, implementation and impact-oriented**.

Based on these experiences, **the Cities CHALLENGE 2.0 was launched in May 2021 with the motto 'Building vibrant and resilient neighbourhoods'**. Once again, experimental Urban Living Labs will be implemented around the world in cities that are home to BMZ-funded projects. They will be geared towards partner needs, focused on flexible and efficient implementation and will work in close coordination with existing country strategies and funding priorities. With this second Cities CHALLENGE, **GIZ intends to further expand and strengthen urban development in German development cooperation in line with the priorities of the Reform Strategy 'BMZ 2030'**.



Building Vibrant and Resilient Neighbourhoods

CITIES CHALLENGE 2.0 BUILDING VIBRANT AND RESILIENT NEIGHBOURHOODS

After a successful implementation of the first CitiesChallenge 2030, the ideas competition will enter a second round in 2021. Under the new motto and with cooperative support of the Cities Alliance and UN-Habitat, innovative urban strategies will again be tested in four Urban Living Labs to demonstrate potential for future upscaling on different levels and replication in different local contexts. Stay tuned for new stories told from communities in Bangladesh, India, Mexico and South Africa!

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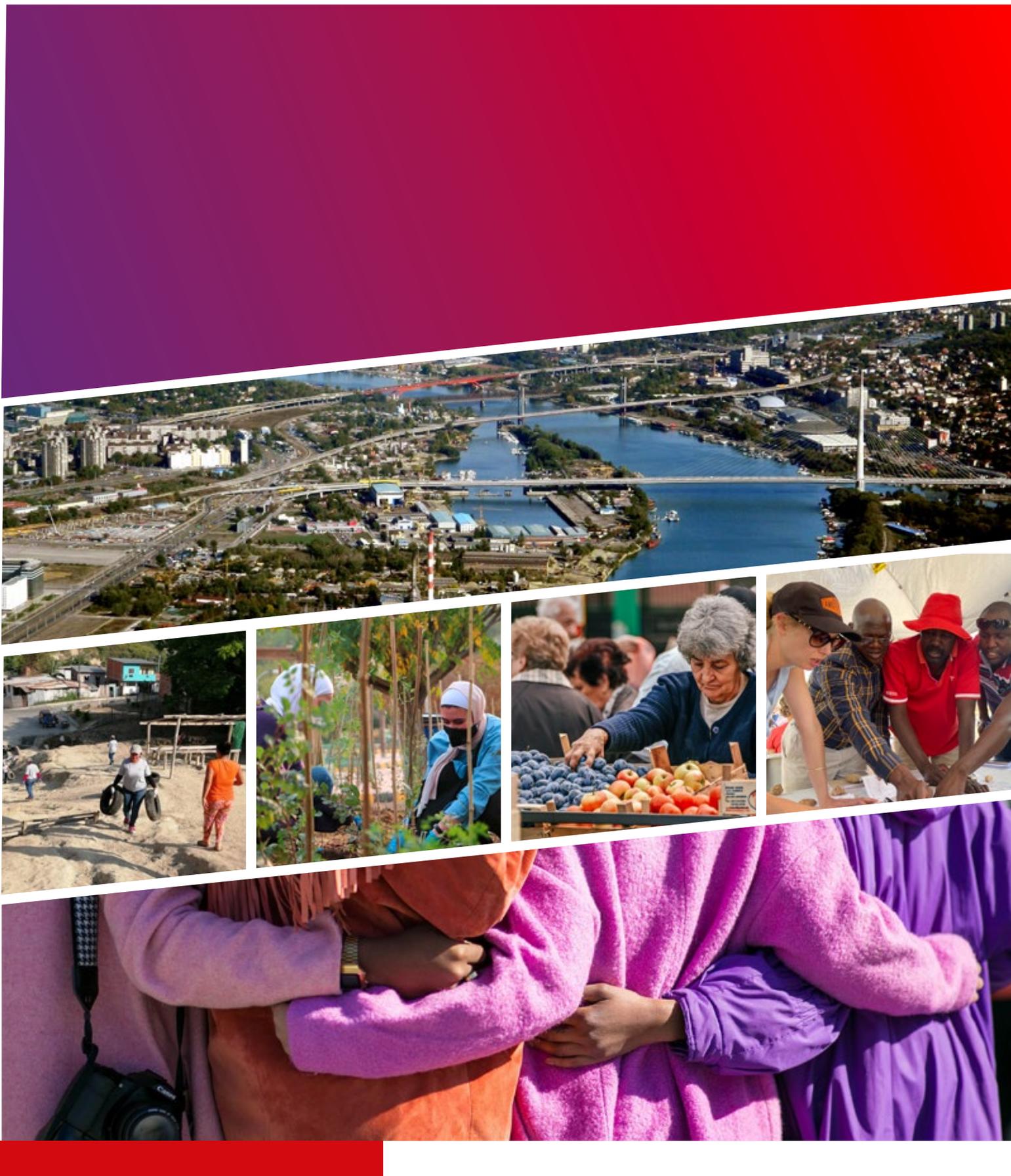
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