

# Creating Resilient Public Spaces – a Global Perspective on the Conditions for Integrated Urban Development

*Roland Krebs, Stefan Mayr, Sheikh Md. Rezwan, Katharina Höftberger, Theresa König, Victoria De Lancer Salas, Shaolin Saint Hilaire Jong, Anselmo Cani*

(DI Roland Krebs, MBA, superwien urbanism, Lenaugasse 2/4, 1080 Vienna, krebs@superwien.com)

(DI Stefan Mayr, superwien urbanism, Lenaugasse 2/4, 1080 Vienna, mayr@superwien.com)

(Sheikh Md. Rezwan, Ass. Prof., Daffodil International University, Birulia, Savar, 1216 Dhaka, rezwan.arch@daffodilvarsity.edu.bd)

(DI Katharina Höftberger, BA, superwien urbanism, Lenaugasse 2/4, 1080 Vienna, hoeftberger@superwien.com)

(DI Theresa König, BSc, superwien urbanism, Lenaugasse 2/4, 1080 Vienna, koenig@superwien.com)

(Victoria de Lancer Salas, Assoc. Prof., UNIBE, Av. Francia 129, Gazcue, Santo Domingo, v.delancer1@prof.unibe.edu.do)

(Shaolin Saint Hilaire Jong, Assoc. Prof. UNIBE, Av. Francia 129, Gazcue, Santo Domingo, s.saint-hilaire@prof.unibe.edu.do)

(Anselmo Cani, MSc. Arch., Universidade Eduardo Mondlane, Rua da Argélia 385, Maputo, cani@africamail.com)

## 1 ABSTRACT

Urban public spaces play a central role in the regeneration of cities: their inclusive and sustainable design is crucial for creating equitable and climate-resilient urban environments. This paper presents the results of an applied research project that involved case studies in three cities on three continents - Dhaka, Maputo, and Santo Domingo – where the team of superwien, in partnership with local academic partners, developed designs for public spaces using an integrated approach. The participatory design process was implemented during the worldwide COVID-19 pandemic in 2021 and 2022 through academic urban living labs in our partner cities. Urban strategies and design solutions for the regeneration of public space were co-created with local communities through a moderated, innovative planning and design process. Additionally, accompanying research was conducted to explore the need for integrated planning approaches in urban regeneration that address multi-sectoral challenges. This approach aimed to ensure that the resulting proposals were holistic and responsive to the specific needs and aspirations of the local communities and urban environments in which they were implemented.

The case studies encompassed a range of sites reflecting diverse urban contexts: the urban lake of Shahjahanpur Jheel in Dhaka that had deteriorated into a dump site, central public spaces in informal neighbourhoods surrounding the historic centre of Maputo, and a central expressway in Santo Domingo. In intensive dialogue with the local populations, their needs and aspirations for these places were identified. Co-creation opportunities and place-making events empowered residents and local entrepreneurs to take an active role in the transformation of their neighbourhoods. Established participation tools were adapted to each local context and new techniques were developed for specific user groups. Additionally, young professionals were included in the design process through cooperation with local universities. Academic partnerships and the cooperation with local city administrations also supported capacity building and knowledge exchange. The results of the process included integrated urban strategies, urban designs, and architectural solutions, completed by cost estimates for implementation.

During the transnational work process, we identified seven overarching challenges that need to be addressed to transform public spaces with an integrated approach: inclusive mobility, housing, climate change adaptation, local economy, governance, as well as gender-sensitive and participatory planning. Considering these aspects in their specific local contexts supports the creation of lively public spaces for the development of inclusive, resilient, and sustainable cities. This paper presents how the challenges were identified and addressed through the applied research approach for the design of public spaces in Dhaka, Maputo and Santo Domingo.

**Keywords:** Co-Creation, Resilient Public Spaces, Participatory Urban Design, Academic Partnerships, Urban Design Lab

## 2 THE PANDEMIC AND OTHER JOINT CHALLENGES

In 2020 the COVID-19 pandemic spread across the world and left its mark in all aspects of human life. Urban life was hit particularly hard: high population densities, smaller housing units, and limited access to open space made life during the pandemic a serious struggle for many. In many cities, public parks and green spaces were closed or access restricted, people had to stay inside for days. Suddenly, the immense value of accessible public space became clearer than ever. This is the time when we started our research project in three cities around the world: Dhaka in Bangladesh, Maputo in Mozambique and Santo Domingo in the

Dominican Republic. All three cities are united in a notorious lack of public spaces. Especially poor or less developed areas face massive challenges when it comes to the provision of recreational outdoor spaces. Land prices are high and informal urban development swallows the remaining open spaces. However, the local municipalities are well aware of the need for quality open spaces for their inhabitants, especially after experiencing a global health crisis. Our task was to create and improve local public spaces in each city. However, in order to approach the design in an integrated manner, several other challenges had to be addressed too.

## 2.1 Participatory design for inclusive public spaces

The main focus of the research and design challenge was to create inclusive public spaces for and with the local communities. The call for public participation in urban design processes is based on a paradigm shift in the planning world that started to recognize the place-based knowledge of local stakeholders. For most of the nineteenth century, positivism strongly influenced the social sciences and planning. There was a distinct division of roles and responsibilities among various actors, with architects and planners primarily serving as advocates for municipal government (König et al. 2023a). This separation has resulted in issues of injustice, marginalisation, and exclusion when higher authorities are solely responsible for designing public spaces (Rocco 2014). Other forms of planning started to emerge with the communicative turn in the 1960s and 1970s. In this approach, the city is made by the people who experience it in their daily lives. Contemporary planning approaches draw on the immense potential of local day-to-day practitioners and the expert knowledge of architects, urbanists, and other professionals. This approach is linked to the planner's position as an intermediary who has the task to reconcile interests, enable communication, and actively create a discourse about the production of space (Dangschat 2006). Participatory planning and design became the new tool for the creation of inclusive cities and public spaces.

## 2.2 Gender-sensitive planning

The discourse on participative and inclusive design also revealed a stark imbalance in the inclusion of girls, women and marginalised groups in planning processes. Urban design has long been a male-dominated discipline and this biased perspective on space has resulted in exclusive urban forms that make life more difficult for care-givers, disabled people, children, and other vulnerable groups (Falú 2020; Kern 2020). Feminist geographers have helped us understand how the unbalanced relationship between women and men is expressed spatially (Hurtig et al. 2023, 84). The feminist perspective on urban design therefore places the everyday life conditions of the neighbourhood at the centre of decision-making. It is necessary to understand the everyday activities and routines of different population groups, including the most vulnerable, to plan and build a city that is inclusive and offers the same opportunities for all. A participatory approach to urban design therefore must aim to include the diverse user groups of urban space with a particular focus on women, children, elderly, and disabled people.

## 2.3 Inclusive and sustainable mobility

The matter of inclusion is also an important topic in relation to urban mobility. Cities in the Global South are prone to particularly unjust mobility opportunities. Rapid urbanisation, uncontrolled urban sprawl in combination with a lack of road infrastructures and adequate public transportation lead to half of the inhabitants in this region suffering from restricted mobility (Venter et al. 2019). Especially inhabitants of urban peripheries and informal settlements, and thus the most disadvantaged members of society, face inequality in accessing urban opportunities such as employment, public institutions, and recreational facilities, which are primarily concentrated in the formal city centres (ibid.). For the working population in these areas, the everyday commute is a huge monetary and timely constraint, while the non-working population (often women, children, elderly) is entirely cut off from these urban amenities (Berger et al. 2014; König et al. 2023b). At the same time, mobility is still one of the biggest sources of CO<sub>2</sub> emissions and the transition towards sustainable modes of transportation is mandatory in order to respond to the ongoing climate crisis. The challenges of unjust and unsustainable mobility in cities of the Global South should therefore be addressed together and with a particular focus on the central role of public space. After all, streets make up for a large share of urban public spaces and the distribution of road space must be shifted towards a more just equilibrium that favours active mobility over individual motorised transportation (Nello-Deakin 2019).

## **2.4 Fostering local economies**

Another activity that often takes place in public space, particularly in cities of the Global South, is trade and commerce. Small informal businesses provide the main income of many families and public spaces are often transformed into temporary or permanent workplaces. Informal economies are set apart from formal markets due to the marginal nature of their activities that serve to sustain livelihoods. It is the result of insufficient demand for labour in underdeveloped countries (Young 2019). Up to 80% of urban dwellers rely on informal economic activities (Alison Brown 2018). Economic offerings greatly influence the overall atmosphere of a location. It's not surprising that areas with numerous shops and restaurants often become bustling urban hubs. With these places becoming more lively, they also have a greater impetus for new entrepreneurial endeavours. In this sense, economic activity can play an important role in reviving public spaces on the one hand, but can also foster unjust distribution of public space on the other (Gisinger 2023). City administrations play a vital role in managing public spaces and creating a balance between the stimulation of local economies and the provision of public spaces for other uses of general public interest (e.g. mobility, recreation, etc.).

## **2.5 Climate change adaptation**

The local effects of climate change are becoming increasingly evident. The rise in sea levels is leading to a surge in natural disasters like floods, droughts, and heavy rainfall. Bangladesh, renowned for its severe floods, accounts for 50% of global cyclone-related deaths (Khan et al., 2011). Between 2011 and 2020, the Earth was 1.09°C hotter compared to temperature records from the period between 1850 and 1900 when the first data on global surface warming became available (IPCC, 2021). Urban areas are facing mounting challenges due to the lack of green spaces, unplanned development, and inadequate soil permeability. Given the impact of climate change, it is crucial to transform cities in order to tackle these issues and implement eco-friendly urban development initiatives. Public spaces can play a significant role in urban adaptation efforts by harnessing their physical and social value to address weather phenomena (Silva & Costa, 2008). Incorporating large green areas and adopting sustainable practices are essential in densely populated cities to mitigate natural disasters and improve overall livability for all residents (WWF, 2020). Embracing nature-based solutions in urban planning is a vital approach to climate change adaptation, offering benefits like managing surface runoff and providing access to public green spaces (Abuje, 2022).

## **2.6 Providing affordable housing**

Ensuring access to secure living environments is crucial for achieving inclusivity, resilience, and sustainability in all human settlements. However, in our project cities, there are significant gaps in accessing affordable housing. The inadequate supply of housing has resulted in the proliferation of informal settlements, currently housing approximately 880 million people (UN-Habitat, 2016). Furthermore, the commodification of housing has contributed to a global crisis of housing affordability. More than 330 million urban households are living in substandard housing or facing financial stress due to housing costs exceeding 30% of their incomes (McKinsey Global Institute, 2017). This housing crisis is particularly severe in the Global South, where rapid urbanisation is intensifying existing housing disparities. Spatial inequality within cities can lead to social segregation among communities (Martín, 2022). Our partner cities face formidable challenges due to accelerated urban growth. Moreover, the already precarious housing situation worsened during the Covid-19 pandemic, as strict curfews forced homes to become the primary spaces for work, study, and daily life.

## **2.7 Responsive city administration**

In having to tackle all these challenges at once, municipalities often encounter significant governance challenges and limited resources for project implementation. They often adopt a reactive approach rather than proactive planning for the future. For example, prioritising investments in extensive road infrastructure like flyovers (as seen in Dhaka) or bridges (as observed in Maputo) over investments in health, safety, and well-being can perpetuate the struggle of communities to meet their basic needs and thrive. Moreover, insufficient resources hinder municipalities from fulfilling their responsibilities in urban development processes, and unclear roles and responsibilities can create power vacuums in project planning and implementation. Conversely, a responsive municipal administration takes action based on participatory urban development, whether at a small scale within an urban quarter or on a larger scale encompassing the entire

city (Reiter, 2021). In this context, addressing concerns related to public spaces becomes a crucial aspect of the responsive city discourse, as it directly influences the quality and accessibility of urban public areas. The following case studies in Dhaka, Maputo and Santo Domingo demonstrate how proactive city administrations can apply participatory design approaches to develop integrated projects that address multiple challenges at the same time.

### 3 CASE STUDY DHAKA – “DHAKA DREAMS”

In Dhaka, the World Bank is working with the Dhaka South City Corporation (DSCC), which administers the southern part of the metropolis, to implement the Dhaka Neighborhood Upgrading Project (DCNUP). The project focuses on the regeneration of public spaces, including the surroundings of Shahjahanpur Jheel, a small water body and green haven situated in one of Dhaka's most populated residential neighbourhoods. In order to address the many dimensions of this task, an interdisciplinary local team was set up for the work on the ground. The mixed team comprised young and experienced architects, urban designers, social anthropologists, and a geographer. The Department of Architecture at Daffodil International University was involved as local academic partner. The project sought to improve Shahjahanpur Jheel for and with the people. The community actively participated in this initiative from the beginning by taking part in various engagement activities.

#### 3.1 Understanding the context of Shahjahanpur Jheel

The first project phase aimed to understand the local context, the challenges in public space, and aspirations of the community in relation to the development of the jheel. As a first step, the relevant stakeholders were identified. The local team was assisted by the Project Director of DSCC and the local ward councillor. They visited local communities, observed the area and compiled a comprehensive list of stakeholders which included members of the public administration, ward council members, a local police officer, land owners, residents, political figures, representatives of the local mosques, school teachers, and entrepreneurs.

Based on numerous stakeholder interviews and a detailed spatial analysis, the team identified eight Emerging Topics that are significant challenges and potentials related to the project development. These topics include poor water quality and pollution, insufficient waste management and maintenance, a lack of accessible public space, formal and informal economic activities, reduced public space due to construction, safety, and social conflict, as well as a strong sense of community and importance of human-scale mobility.

As a next step, residents were encouraged to express their ideas and opinions on the Shahjahanpur Jheel and its surrounding areas through anon-site spontaneous interaction. The goal was to involve groups like youngsters, the elderly, street vendors, mothers picking up their kids, guys spontaneously chatting, etc. who might not accept an offer to take part in a formal workshop or interview. The debate was centred around a big aerial map of Shahjahanpur Jheel and its surroundings. Men and women were asked about their favourite areas, places they did not like, and places that required improvement during the emotional mapping exercise. Blue, red, and yellow board pegs were used to indicate these locations. Another activity involved playing the Place Game with a group of invited stakeholders (PPS 2016). The game was modified to match the Shahjahanpur Jheel area, but the methodology remained the same. The participants included a variety of local decision makers, including representatives of mosques, business owners, landowners, educators, and political figures. Twenty people attended the workshop, seven of whom were women.

The results of the spatial analysis and community engagement activities were summarised to develop a common vision for the development of Shahjahanpur Jheel. This vision served as an overall guiding principle for the development of the conceptual design: clean recreational spaces for the community, lush greenery around the edge, a safe place for different groups, proper maintenance and an open public space for all.

#### 3.2 Co-creation towards urban design

It was time to come up with specific concepts and design proposals for the Jheel area. Additionally, it was the consultant's duty to share the lessons learned from the first round of public engagement and provide seminars on developing capacity for students, faculty members, and DSCC associates. The Dhaka Urban Design Lab was organised with the academic partner, the Department of Architecture at Daffodil International University in Dhaka, as an online experience due to the pandemic situation at the time. It

included academic inputs on pertinent topics related to participatory urban design, training sessions on 24 participatory tools, and a student competition. A total of 120 participants joined the diverse program. The students who participated in the design competition for the area around Shahjahanpur Jheel received a competition brief, as well as all findings from the participation process, and data from the analysis. 92 students from five universities in Dhaka participated in the competitions. 24 teams completed their designs over the course of four days and sent them in for the jury's deliberation. All competition entries were of great quality and brought inspiration and new ideas to the project.

Based on this experience and valuable exchange, several co-creation workshops were held to include the opinions of local stakeholders into the design process. The first three workshops were aimed at specific groups, whose voices often go unheard: children, women, as well as street vendors and rickshaw pullers. The children sketched their ideas on tracing paper and pasted them over existing images around the jheel, women made detailed notes on specific locations and placed cut-outs of urban amenities on a map, local entrepreneurs provided input specific to particular locations that affect their businesses. Finally, local community representatives and officials participated in a workshop where they reviewed the top student projects from the Urban Design Lab and outlined and discussed their own ideas. It was innovative and new in the context of Dhaka, that a government project involved community members in the design of public space. The participants were carefully selected to represent diverse age, gender and occupations.

The second set of activities conducted in the co-creation phase were public events that took place directly at the Shahjahanpur Jheel site. The fundamental concept of the design-build workshop was to invite all neighbours and users of the public space to participate in the creation of their own environment, empower them to take care of the space, and create ownership. By promoting the event in advance on-site with banners and leaflets as well as by being present in the area when the event was taking place, many locals were reached. The workshop had an open structure, which allowed participants to drop in and out whenever they pleased, allowing for more flexible and impromptu involvement. A total of 50 to 60 members of the neighbourhood participated in the planning, design, and fabrication of temporary urban furniture as well as the painting of a wall in public space.

To close the series of co-creation activities, an interactive feedback exhibition was set up the day following the design-build workshop. The exhibition's goal was to present both the winning designs produced by the students during the Urban Design Lab and all the thoughts and suggestions that had been gathered from the neighbourhood during the co-creation workshops over the preceding weeks. The display also included a brief overview of the project and the opportunity to share further comments and suggestions.

### 3.3 Finalising the urban design

The vision and goals set the framework for the development of an urban design strategy that roughly outlines the main functions and features of the jheel development embedded into its urban context. The urban strategy is the initial step for changing the Shahjahanpur Jheel area. It is made up of various layers that describe the key characteristics, duties, and linkages of the site with respect to its surroundings. The plan focuses on the local requirements and potential for change while taking into account the urban layout, transportation patterns, and existing infrastructures in a larger area surrounding the jheel. The levels of the urban strategy deal with economic activity, green and blue networks, central locations, and accessibility.

Based on the vision, project goals and strategy, a conceptual design was developed for the regeneration of Shahjahanpur Jheel. The design incorporates most of the ideas and wishes formulated by the community and seeks to reconcile conflicting interests where possible. A continuous path around the jheel was recognised as the most crucial component mentioned by all stakeholder groups. More green space, public restrooms, a playground for children, an extra pedestrian bridge across the jheel, and seating areas are other design features that were requested and incorporated in the design. Some desired elements, like a large market area or a site for swimming and fishing, could not be included due to spatial or environmental limitations. Nonetheless, the implementation of the design will provide a climate-friendly and sustainable urban public space that accommodates the needs of diverse and vulnerable groups, offers opportunities for local entrepreneurs and fosters active mobility with a limitation for car traffic. It touches upon almost all challenges that have been identified in relation to the development of public spaces, and all of these topics emerged from a participatory process with the local community which is ready to take ownership and responsibility for their Jheel.



## 4 CASE STUDY MAPUTO – “MAPUTO URBAN LAB”

In Maputo, Mozambique, the World Bank has granted funding for the purpose of preparing and implementing the Maputo Urban Transformation Project (PTUM). This project aims to support the key priorities outlined in the Municipal Development Plan by undertaking impactful investments and reforms in urban infrastructure. It focuses on transforming specific areas into versatile community spaces and central hubs within neighbourhoods. Additionally, it involves the restoration of 20 km of pathways to facilitate pedestrian and cyclist connectivity across the city. The project's development has been guided by a collaborative urban design process and a place-oriented approach, actively involving local stakeholders throughout all phases. The engagement of various parties, such as local architects, urban planners, project residents, community leaders, and architecture students, has been instrumental in shaping the project from site selection to its final design.

### 4.1 Participatory analysis of neighbourhoods in the periphery

The project encompassed 20 neighbourhoods, covering an approximate area of 17.26 km<sup>2</sup>, and its benefits would extend to over 264,054 individuals (Instituto Nacional de Estatística 2019). To initiate the planning process, the neighbourhoods were prioritised based on various criteria, including vulnerability to climate conditions, poverty levels, and limited access to essential infrastructures. The areas exhibit high population density, with inadequate distribution of green and recreational spaces, and a lack of water supply, solid waste collection services, energy supply, and sewage services. Moreover, the neighbourhoods face recurring flood-related issues due to inadequate drainage systems (CMM, 2021).

To comprehensively analyse and evaluate the entire project area, a local team of architects and urban planners based in Maputo was assembled. They actively worked on-site, gathered essential information, and facilitated participatory activities. Furthermore, they served as a crucial link between local and international stakeholders. As part of an inclusive diagnostic process, the Municipality of Maputo identified 107 existing public spaces dispersed across the 20 project neighbourhoods, compiling a detailed dataset that analysed their condition and usage. The study revealed several deficiencies in these public spaces, including a lack of urban furniture and basic infrastructures such as public toilets and shaded areas. Additionally, many of these spaces were in a state of disrepair due to the absence of maintenance policies, exacerbating issues during rainy seasons when flooding occurs repeatedly.

The supervien team evaluated the data, focusing specifically on the accessibility of public spaces and the existing and future public transport systems. A "5 minutes walking distance" parameter was used to identify public transport stations, points of interest, and the road network close to public spaces. This analysis also incorporated the overlap between flooding areas and public spaces. All information was fed into a GIS-based multi-criteria analysis that considered all factors, and helped to select those public spaces with highest accessibility for as many residents as possible, distributed equitably throughout the entire project area.

Additionally, qualitative data was considered. Residents in each neighbourhood were interviewed about their mobility patterns. Participatory sessions were conducted in all 20 neighbourhoods, accompanied by the application of various engagement tools during interactions organised in collaboration with the neighbourhood secretaries. These participatory tools included emotional mappings, surveys, and interviews with key stakeholders to gather different perspectives on the public spaces. These methods provided an overview of the area, including the current state of the public spaces, maintenance challenges, characteristics of their current usage and the social groups that utilise them, as well as their development potential.

In order to involve even more local residents and future public space users, we sought out residents who held influential positions within the community, such as block chiefs, who could assist in reaching out to other interested residents and encouraging their participation in our workshops. The goal was to employ at least one of these multipliers in each of the twenty neighbourhoods within the project.

### 4.2 Expanding tested participation tools to all neighbourhoods

With the support of the multipliers, our team organised workshops with the local community in five pilot spaces. The aim was to test and determine the most effective participatory tools to be used in these irregular settlements of Maputo. The workshop concepts were tailor-made for the specific community groups that were engaged, and certain tools had to be adapted to suit the local context. Factors such as the participants'

high illiteracy rate and the need to conduct activities in open spaces due to COVID-19 regulations were crucial considerations in tool adaptation.

In addition, supplementary activities were arranged for specific community groups, such as women, children, and community representatives. This approach enabled us to hear diverse perspectives and incorporate the viewpoints of vulnerable groups, fostering a more inclusive approach. The contrasting perspectives became evident during the workshops held for one particular public space. In the session with the general population (predominantly men), participants mentioned that the space was only used by women. However, in the workshop with women, they expressed that they indeed utilised the space frequently, particularly when men were absent. For engaging children, we found that creative and playful tools were most effective in keeping them interested and comfortable enough to share their opinions. For this purpose, we developed our own tools, such as an urban game called "Build-your-Square", which proved highly successful in engaging children and youth. Throughout the experimental pilot phase, dedicated to creating tailor-made co-creation tools for the design process in Maputo, lessons learned from each pilot were applied to subsequent ones. Based on these learnings, the tools were adjusted and gradually the most effective combination of co-creation tools for the local context in Maputo could be identified.

In order to implement these tools in the remaining 15 neighbourhoods, the team was supported by local architecture students from various universities who were interested in expanding their knowledge on participatory urban design. During the Maputo Urban Lab, we brought together representatives of the Municipality of Maputo, more than 35 local students, and 15 multipliers from the target neighbourhoods. The event, co-organised by the Municipality, superwien, Eduardo Mondlane University and the Ordem Dos Arquitectos de Moçambique, provided an opportunity to share the collective knowledge of all these parties and jointly envision the future of public spaces in Maputo. To prepare the students for their participatory workshops in the 15 neighbourhoods, the team offered training sessions for selected participatory tools. Under the guidance of the local multipliers, the students had the opportunity to put the tools into practice in the neighbourhoods. Through a dialog-oriented approach and with the support of the students and locals, we successfully gathered information, ideas, and visions for the public spaces to be transformed. The design process prioritised the co-creation of designs, involving residents from all locations.

#### **4.3 A design concept based on seven essential elements**

Collaborating with a diverse range of opinions provided valuable input for an inclusive design process, and the resulting design outcomes demonstrated the success of the approach. The development vision involved creating well-designed urban spaces that serve as central hubs for each of the 20 neighbourhoods and are accessible through an active mobility network. Seven essential design elements were identified that should be implemented in each of the 22 public spaces. The first element focused on maximising the size of public spaces, as well as increasing area densification. This addresses the current issue of limited and small public and open spaces. The second key design element is the inclusion of a community porch, which would act as the centrepiece for each neighbourhood's local community. This multifunctional community centre would serve various purposes, such as housing municipal offices, toilets, lecture and workshop spaces, and a library. The third element involved the economic revitalization of the area. Recognizing the importance of encouraging commercial activities in public spaces, we proposed incorporating specific marketplaces for both formal and informal commerce, as well as activating existing ground floor spaces. To promote inclusivity, the fourth key element focused on using diverse and inclusive urban furniture. This would ensure that public spaces can be utilised by people of all ages and genders. The fifth urban design element emphasised the significance of green infrastructure for sustainable future development. It involved planting trees and utilising sustainable materials in the design process. The sixth aspect was centred around local co-creation and maintenance. This approach would allow for some flexibility in each public space, enabling local adjustments while maintaining a cohesive design. It also encourages elements that foster a sense of local identity and can be developed and built by community members, strengthening their connection to the area. Lastly, security aspects and the integration of basic infrastructure are fundamental foundations for all designs, from the active mobility network to public spaces. These considerations ensure the safety and functionality of the overall design concept.

In accordance with the Dhaka case, the participatory process in Maputo revealed the multidimensional needs and functions of public spaces for the local community. The design concept builds on the identification of

multiple challenges and addresses them through an integrated design approach that incorporates elements of inclusive design.

## 5 CASE STUDY SANTO DOMINGO – “LABORATORIO SANTO DOMINGO”

Santo Domingo, capital of the Dominican Republic, is characterised by the dominance of car-traffic and the scarcity of public spaces. These aspects were the starting point of our research. A relevant example is the ‘V Centenario’ Expressway, built between 1992 and 1994, which connects Santo Domingo downtown with East Santo Domingo. This eight lane highway cuts through a homogeneous social and economic neighbourhood in District 3, a complex area characterised by a low-income population, high percentage of informal occupancy and lowest concentration of public space. Villa Juana and Villa Consuelo are two of the local neighbourhoods crossed by ‘V Centenario’ that were selected to be assessed and developed to improve the quality of life for residents through a new vision for the public space along the expressway.

### 5.1 A gender lens in public space diagnostics

As a first step of the participatory urban design process, the main stakeholders were identified. These included representatives of the public administration, community groups, street vendors, transport workers, national and international experts, and non-governmental organisations. The second phase included workshops in situ and collaboration with the Universidad Iberoamericana (UNIBE) to analyse the public spaces along V Centenario. Adapting superwien’s experienced work methodology to the local context, resulted in a “Toolbox for Santo Domingo” with the followings tools: gender-sensitive responses, co-creation with the informal sector, co-creating inclusive public spaces: from ideas to sketches to conceptual designs, first-time bici (bicycle), build your daily route, digital collage, urban accessibility walk with people with disabilities, urban rally with athletes, cultural rally, and a case study discussion with vendors.

Based on the analysis, there were three specific topics that broadly structured the entire participatory process. Firstly, local economies through informal vendors, or street vendors, were generally considered a threat because they occupy sidewalks, obstruct public spaces, and generate garbage. There is competition for the use of public space and a sense of appropriation around it. Secondly, the V Centenario Expressway was designed at a point in history when the transportation model was very different from today’s vision of inclusive mobility. This is reflected in the intervention strategies that focused on opening arteries to private cars, always prioritising the flow of traffic over the safety and comfort of pedestrians. And thirdly, a gendered focus on activities related to care and life support reveals inequalities that emerge from the prevailing logic of economic profitability in urban space. It allowed us to analyse some of the problems that had been identified as emerging topics, such as the lack of public space, which is monopolised by roads and parking lots, basketball courts and street vendors. Women, children, the elderly, and people with disabilities are disadvantaged in the distribution of uses in public space. In this way, the participatory process developed to identify the needs of the communities in relation to the expressway incorporated a diversity of perspectives in order to arrive at sensitive and contextualised project conclusions.

### 5.2 Talking to people to understand social spaces

The Laboratorio Santo Domingo was developed in close cooperation with the School of Architecture at UNIBE. It began with a cycle of open virtual workshops, in the form of master classes in which architects and urban planners with international experience were invited to a hybrid space between theory and practice. These workshops generated the basic skills to understand the methodology for participatory design. They were followed by a full week of concentrated activities, such as lectures, workshops on participatory urbanism, tactical urban planning strategies and placemaking, together with professors and enrolled students. The main question during these masterclasses was the role of participation in the specific context of Santo Domingo. At the end of the Laboratorio Santo Domingo, the students concluded that participation is about giving people the space to decide the future of their neighbourhoods. Talking to the local people is the most sensible approach to understanding places and their complexities. During the Urban Lab, the students went out into the street, talked to people using a range of tools, starting with the Goals Grid Analysis, to identify needs and desires regarding public spaces. They played the Place Game, conducting surveys to understand how different types of residents perceived their neighbourhoods. They carried out Exploratory Walks guided by residents, where they explored individual perspectives on space. We also carried out a Placemaking activity, where the students worked on preliminary ideas for the planning area on site and with the local



residents. This activity, using public space as the main stage and forum to gather people, was the highlight of the week. Neighbourhood leaders and local experts had the opportunity to give feedback on the students' ideas. The cycle was closed with an architecture and urbanism competition open to all students.

### 5.3 Design towards a green avenue

The participatory urban planning tools guided the design process, which resulted in three main approaches to public space intervention: a new urban avenue and inclusive green corridor; new centralities as game changers; and the transformation of residual public spaces into new parks. The overall concept was to take the subway stations as the main points of interest and focus the designs around that infrastructure.

The first essential aspect of the urban strategy was the transformation of the expressway back into an urban avenue. The second element of street transformation was the development of a green corridor, with trees along the avenue and in the neighbourhoods' service streets. The shade cast by the new trees would improve the conditions for active mobility like walking. In addition, specific public spaces would be transformed into new centralities characterised by urban or green functions. These parks were already there before, but nobody used them. Given that there would be more shade and thus more people walking, the project would also support the reactivation of ground floors, including commercial activities in public space, which could be better organised.

The resulting design reflects the lessons learned throughout the process, combining residents' views with technical requirements to create a proposal that responds to the environment, improves the urban quality of the two neighbourhoods it reconnects, and creates spaces for community gathering in new, inclusive, high-quality public spaces.

## 6 SEVEN TOPICS THAT LEAD TO INTEGRATED URBAN DEVELOPMENT

In conclusion, the applied research project highlighted the importance of inclusive, integrated, and locally rooted approaches in urban regeneration and how integrated designs could be implemented through participatory urban co-design processes. It showed that equitable cooperation across hierarchies is necessary and possible, including stakeholders on the global, national, local, and community level. The projects in Dhaka, Maputo, and Santo Domingo demonstrated the value of engaging local communities, considering gender perspectives, promoting sustainability, and fostering academic partnerships in creating equitable and sustainable urban public spaces. The study also demonstrated that successful implementation of public space projects depends on a multi-sectoral, integrated approach in the context of the given public space.

The seven overarching topics that were identified as crucial aspects in the transformation of public space were relevant in all three case studies. In each city, the specific context and potential of public space development was strongly characterized by the capacities of the local administration, the impacts of climate change and the lack of affordable housing. Informal settlements have encroached upon public spaces in Dhaka, Maputo and Santo Domingo, reducing public space and increasing the pressure on open spaces through high population densities. The housing crisis is therefore a main challenge, setting the framework for public space provision in the global south. Climate change increases the pressure on open spaces which are needed as retention spaces and habitats for biodiversity on the one hand, but also calls for the implementation of green infrastructure in the urban fabric to alleviate its immediate impacts like urban heat islands. This is particularly true for large urban conglomerations where the escape to natural areas around the city is reserved for high-income population groups. Local city administrations are confronted with numerous pressing issues and often fail to see the urgency of investments in public spaces. It is therefore even more important to highlight the integrated nature of public space interventions that bring along solutions for many other challenges.

The cases studies have also shown how two main activities are dominating and competing for public space: mobility and local economies. Both come along with great challenges and opportunities. Being considered more important than recreation and care work, car-dominated transportation infrastructures and economic activities often displace more vulnerable users like women, children, and elderly people who have different needs in relation to public space. However, economic activity is also vital for attractive public spaces that need activity and live in order to be interesting, enjoyable and safe. At the same time, the mobility transition towards sustainable transportation, that is mandatory in the face of climate change, has the potential to solve many challenges in relation to the unjust division of public space. As the design proposal for V Centenario in

Santo Domingo demonstrates, downsizing motorways can provide the space we need to enlarge public space and insert green areas into the city. Active modes of transportation are much more efficient in terms of space consumption, more compatible with nearby recreational uses, healthier and better for the environment.

Last but not least, these and other challenges as well as their potential solutions must be identified and developed with and through the local communities. Public participation with a gender-sensitive approach is key to an integrated urban design that is responsive to the local context. Adequate engagement tools must be adapted to the spatial context as well as to the culture and capabilities of the involved stakeholders. Moreover, co-creation should take place in situ to reach the actual space users. The findings of this project provided valuable insights and tools for practitioners and policymakers to adopt innovative approaches in their urban regeneration projects and promote inclusive and sustainable urban development in the Global South.

## 7 REFERENCES

- ABUJE, S. J.: Case Study of Nature Based Solutions Application in Nairobi. Unpublished article, 2022.
- BERGER, Gerald, FEINDT, Peter, HOLDEN, Erling and RUBIK, Frieder: Sustainable Mobility-Challenges for a Complex Transition. In: *Journal of Environmental Policy & Planning*, Volume 11, Issue 3, pp. 303-320. London, 2014.
- BROWN, Alison: The Urban Informal Economy. UN-HABITAT, 2018. Available at: <https://unhabitat.org/the-urban-informal-economy-alison-brown> [Accessed 21.06.2023]
- CMM, Conselho Municipal de Maputo Componente 1: melhoria integrada dos assentamentos informais: diagnóstico integrado 2021. Internal Projecto de Transformação Urbana de Maputo (PTUM P171449) report.
- DANGSCHAT, Jens: Raumplanung unter Unsicherheiten--Beherrschbarer Widerspruch? In: Klaus SELLE (ed.) *Planung neu denken, Band 1: Zur räumlichen Entwicklung beitragen. Konzepte. Theorien. Impulse*. Dortmund, 2006.
- FALÚ, Ana: La vida de las mujeres en confinamiento en las ciudades fragmentadas. Un análisis feminista de los temas críticos. In: *Astrolabio*, Volume 25, Issue 22–45. Buenos Aires, 2020. Available at: <https://revistas.unc.edu.ar/index.php/astrolabio/article/view/29933> [Accessed 18.06.2023]
- GISINGER, Emma, ARRUDA, Marcella, HERRERA, Viviana, DE OLIVEIRA, Ariela and KREBS, Roland: Activating the Local Economy. In: Roland Krebs and Stefan MAYR (eds.) *Future Public Spaces. Urban Design in Times of Crisis*. Berlin, 2023.
- HURTIG, Milagros, FALÚ, Ana, HERRERA, Viviana, DE OLIVEIRA, Ariela, and KREBS Roland: Gender-sensitive Planning. In: Roland Krebs and Stefan MAYR (eds.) *Future Public Spaces. Urban Design in Times of Crisis*. Berlin, 2023.
- INSTITUTIO NACIONAL DE ESTATISTICA: Censo 2017 Brochura dos Resultados Definitivos do IV RGPH. Maputo, 2019. Available at: <http://www.ine.gov.mz/iv-rgph2017/mocambique/censo-2017-brochura-dos-resultados-definitivos-do-iv-rgphnacional.pdf/view> [Accessed 22 June 2022].
- IPCC: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge/New York, 2021.
- KERN, Leslie: *Feminist City*. London/New York, 2020.
- KHAN, Aneire E., XUN, Wei W., AHSAN, Habibul and VNEIS Paolo: Climate Change, Sea-Level Rise, & Health Impacts in Bangladesh. In: *Environment: Science and Policy for Sustainable Development*, Volume 53, Issue 5, 18–33. London, 2011.
- KÖNIG, Theresa, GISINGER, Emma, NOGALES, Lucia, ALEGRE, Mariana, DE OLIVEIRA, Ariela and KREBS, Roland: Planning from Belwo. In: Roland Krebs and Stefan MAYR (eds.) *Future Public Spaces. Urban Design in Times of Crisis*. Berlin, 2023a.
- KÖNIG, Theresa, HÖFTBERGER, Katharina, HERRERA, Viviana, DE OLIVEIRA, Ariela and KREBS, Roland: Transitioning to Inclusive Mobility. In: Roland Krebs and Stefan MAYR (eds.) *Future Public Spaces. Urban Design in Times of Crisis*. Berlin, 2023b.
- MARTÍN, Carlos: Closing the Housing Gap. In: *Resilient Public Spaces Webinar Series #6*. Vienna, 2022. Available at: <https://vimeo.com/688564343> [Accessed 23.06.2023]
- MCKINSEY: Housing Affordability. A Supply-Side Toolkit for Cities. Briefing Note Prepared for CityLab Paris. Paris, 2017.
- NELLO-DEAKIN, Samuel: Is there such a thing as a 'fair' distribution of road space? In: *Journal of Urban Design*, Volume 24, Issue 5, pp. 698–714. London, 2019. Available at: <https://www.tandfonline.com/doi/full/10.1080/13574809.2019.1592664> [Accessed 19.06.2023]
- PPS (Project for Public Spaces): *The Place Game: How We Make the Community the Expert*. New York, 2016. Available at: <https://www.pps.org/article/place-game-community> [Accessed 26.06.2023]
- REITER, Andreas: Von der Smart City zur Responsive City – was Städte zukunftsfähig macht. In: *Webblog of ZTB Zukunftsbüro*. Vienna, 2021. Available at: <https://blog-ztb-zukunft.com/2021/05/09/von-der-smart-city-zur-responsive-city-was-stadte-zukunftsfahig-macht/> [Accessed 18.06.2023]
- ROCCO, Roberto: Why should we discuss spatial justice in Urbanism studies? Delft, 2014. Available at: [https://www.researchgate.net/publication/269930459\\_Why\\_should\\_we\\_discuss\\_spatial\\_justice\\_in\\_Urbanism\\_studies](https://www.researchgate.net/publication/269930459_Why_should_we_discuss_spatial_justice_in_Urbanism_studies) [Accessed 21.06.2023]
- SILVA, Maria Matos and COSTA, João Pedro: Urban Floods and Climate Change Adaptation: The Potential of Public Space Design When Accommodating Natural Processes. In: Meenakshi ARORA and Hector MALANO (eds.) *Urban Water Cycle Modelling and Management*. Basel, 2018.
- UN-Habitat. *Slum Almanac 2015–2016. Tracking Improvement in the lives of slum dwellers*. Nairobi, 2016.
- VENTER, Christo, MAHENDRA, Anjali and HIDALGO, Dario: From Mobility to Access for All: Expanding Urban Transportation Choices in the Global South. WRI Working Paper. Pretoria, 2019. Available at: <https://files.wri.org/d8/s3fs-public/from-mobility-to-access-for-all.pdf> [Accessed 18.06.2023]

- WWF: What Are Nature Based Solutions and How Can they Help Us Address the Climate Crisis? Washington, 2020. Available at:  
<https://www.worldwildlife.org/stories/what-are-nature-based-solutions-and-how-can-they-help-us-address-the-climate-crisis> [Accessed 23.06.2023]
- YOUNG, Graeme: The State and the Origins of Informal Economic Activity: Insights from Kampala. In: Urban Forum, Volume 30,  
p. 407-423. Heidelberg, 2019.