

城市，让生活更美好
Better City, Better Life

SHANGHAI MANUAL

*A Guide for Sustainable Urban Development
in the 21st Century · 2023 Annual Report*



UN HABITAT
FOR A BETTER URBAN FUTURE



UN-Habitat
Bureau International des Expositions
Shanghai Municipal People's Government
Supported by Ministry of Housing and Urban-Rural Development of the People's Republic of China

Integrating Resources to Secure a Sustainable Urban Future for All

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Preface 1



The Shanghai Manual: A Guide for Sustainable Urban Development in the 21st Century reflects the longstanding contribution of multilateral cooperation between the United Nations, the Bureau of International Expositions, and the Municipal Government of Shanghai. Focused on “Integrating resources to secure a sustainable urban future for all”, in line with the theme of World Cities Day 2023 on “Financing a sustainable urban future for all”, the 2023 Annual Report highlights global urban best practices across the five core sustainable development pillars of society, economy, environment, culture, and governance. In addition to cases on international cooperation, it presents a specialized chapter on financing for sustainable urban development as well as a chapter on the best practices of the Shanghai Award 2023 winning cities. The manual will be launched during the Global Observance of World Cities Day and will serve as an important point of reference for the global network of urban professionals and practitioners to advance sustainable urbanization.

Integrating resources is critical to effectively realize the full potential of cities and perpetuate sustainable urban development. Based on lessons learned, this report reflects upon new urban realities and responds to important questions faced by city leaders globally. How can cities leverage social capital and embed equity into their development processes? How can cities implement diversified financing strategies and promote sustainable economic growth? How can we build green, ecologically sensitive, and resilient cities? How can urban cultural heritage and cultural investment enhance the quality of urban life? How can we build cross-regional urban governance and transition towards shared cities? How can the global community utilize international cooperation to advance sustainable urban development? How can cities adopt new models of financing to advance sustainable urban development? The Manual explores these questions and assesses inspiring actions undertaken by cities and municipalities that demonstrate transformative solutions to key challenges around these areas of interest.

In an era defined by unprecedented urbanization, the Manual emerges as an inspiring compendium of urban best practices, offering new ideas and practical solutions and laying out innovative pathways for cities to transpire as inclusive, equitable, resilient, and sustainable places to live and work. The 2023 Annual Report presents more than twenty-four case studies across fourteen different countries. Case studies are presented via three core sections, including their contextual background, their implementation

process, and the lessons we can learn from them. In addition, twenty-two policy suggestions are noted as key references for mayors and municipal government officials and other key stakeholders in urban development to help advance sustainable urbanization.

I would like to extend my warmest congratulations for the publication of the 2023 edition of the Shanghai Manual, and I encourage our partners to read and reflect on the cases outlined in this report. I am confident that this report will provide urban leaders and various stakeholders with practical guidance and

inspiration to help unlock the potential of cities to drive sustainable urbanization and strengthen the quality of life and opportunities presented by urban areas around the world.



Maimunah Mohd Sharif
Under-Secretary-General
and Executive Director of UN-Habitat

Preface 2



"Better City, Better Life" was the unifying force of Expo 2010 Shanghai; it successfully drew together nations and millions of visitors to explore, discuss, and envision the blueprints for future cities and the promotion of harmonious urban lifestyles. Offering a distinctive platform for the international community to present innovative solutions aimed at fostering sustainable, inclusive and innovative cities, Expo 2010 Shanghai showcased achievements and accomplishments from around the globe and directly engaged citizens in the process of building better cities.

World Expo 2010 left a valuable intangible legacy, notably in the form of World Cities Day and the Shanghai Manual. The first edition of the Shanghai Manual was published in 2011, as a collaborative effort of the Bureau International des Expositions (BIE), UN-Habitat, the Shanghai Municipal People's Government, and with the support from the Ministry of Housing and

Urban-Rural Development of the People's Republic of China. Gathering insights and best practices, it serves as a case-based guide for shaping more liveable cities.

Adhering to the innovative spirit of Expo 2010 Shanghai, the Shanghai Manual continually renews its content, as a repository of case studies for urban planners and managers in their quest for innovative models of development that prioritise greener and more equitable urban habitats. Collecting and showcasing real-life experiences, each edition features new lessons and highlights effective policies, techniques and frameworks to drive tangible change for citizens.

With cities around the world under pressure from economic shocks, growing inequalities, and the effects of climate change, coordinated solutions must be applied to address the current needs of citizens and stave off future challenges. The dynamic nature of urban areas is key to realising social equity, innovation, resilience and diversity. This must be leveraged in order to strengthen initiatives in favour of common objectives such as green growth, diversified governance, and international cooperation.

Pursuing the shared aim of making cities smarter, more inclusive, and more dynamic, this 2023 edition of the Shanghai Manual introduces specific pathways

that cities worldwide have taken to effectively harness resources for sustainable urbanisation. With the theme “Integrating Resources for a Sustainable Urban Future for All”, it highlights the potential and practical applications of active urban development. The policies, governance recommendations, and feasible approaches at the local level presented in this edition can serve as insightful examples to empower cities to overcome major global challenges and make progress

in achieving the Sustainable Development Goals.



Dimitri S. Kerentzes
Secretary General of the Bureau International des
Expositions (BIE)

Acknowledgements

This annual report represents a collaborative effort, made possible by the contributions of many people.

We wish to express our deep appreciation to Ms. Maimunah Mohd Sharif, Executive Director of UN-Habitat. Thanks to her help and support, the Shanghai Manual can come to fruition and be updated and released annually to provide reference experiences for implementing the urban dimensions in the 2030 Agenda for Sustainable Development and the New Urban Agenda. We wish also to thank all those UN-Habitat experts who contributed by reviewing the Shanghai Manual and providing valuable advice, namely: Rong Yang, Sam Gillatt and Siqi Chen from UN-Habitat Regional Programmes Division; Oumar Sylla from the Regional Office for Africa; Bruno Dercon from Regional Office for Asia and the Pacific; Elkin Velasquez Monsalve from the Regional Office for Latin America and the Caribbean; Salma Mustafa from the Regional Office for Arab States; Catarina Camarinhas from the Myanmar Country Office; Laxman Perera from Pakistan Country Office; Lennart Fleck from the Global Solutions Division; Stephanie Briggs as the English copy editor.

We also thank Mr. Dimitri Kerkentzes, Secretary General at the Bureau International des Expositions, Mr Antoine Bourdeix and their team who provided consistent support and help for the compilation of the Shanghai Manual and its annual report. Thanks to them, we can continue to carry forward the spirit of "Better City, Better Life" of Shanghai World Expo by releasing the Shanghai Manual and its annual report.

We wish also to thank leaders and colleagues from the Ministry of Housing and Urban-Rural Development of the People's Republic of China who provided positive support and valuable advice for the compilation and review of the 2023 Annual Report.

We would like also to express our deep appreciation to Chen Jining, Secretary of the CPC Shanghai Municipal Committee; Gong Zheng, Mayor of Shanghai; Zhang Xiaohong, Vice Mayor of Shanghai and Wang Weiren, Deputy Secretary of the CPC Shanghai Municipal Committee, for their attention and support for the compilation of the annual report. Thanks are also due to all those who assisted in compilation and coordination tasks, and in particular to: Director Hu Guangjie, Vice Director Jin Chen, Chief Engineer Liu Qianwei, Ms. Peng Bo, Mr. Ding Jian and Mr Li Yang from Shanghai Municipal Commission of Housing, Urban-Rural Development and Management, as well as Director Cheng Jian, Ms. Wang Chanya, Ms. Rong Yu, Ms. Mao Yingjuan from the Shanghai Coordination Center of World Cities Day.

Shanghai Coordination Center of World Cities Day organized multiple teams of experts to help compile and modify every chapter of the annual report. The leading experts of each team are: Professor Zeng Gang and Associate Professor Zhu Yiwen from the Institute of Urban Development at East China Normal University; Professor Yu Hai from the School of Social Development and Public Policy at Fudan University; Professor Zhu Dajian and Dr. Chen Haiyun from the School of Economics & Management of

Tongji University; Research Fellow Yang Rongbin and Associate Research Fellow Shi Wen from the Shanghai Library (Institute of Scientific & Technical Information of Shanghai); Professor Peng Zhenwei, Professor Huang Yi, Associate Professor Chen Chen, Associate Professor Zhong Xiaohua, Associate Professor Hao Lei, Associate Professor Li Lingyue and Assistant Professor Cao Zhan from the School of Architecture & Urban Planning of Tongji University; Research Fellow Yu Hongyuan, Dr. Zhu Yunjie from the Shanghai Institutes for International Studies and Professor Li Guangming from College of Environmental Science and Engineering of Tongji University; Wang Xin, Vice Dean of United Nations Environment Programme-Tongji Institute of Environment for Sustainable Development, etc. (Names are listed in the order of chapters.) Among them, Professor Zeng Gang and Associate Professor Zhu Yiwen were responsible for the theme development of the annual report and framework design in their capacity as the chief experts. Meanwhile, we wish to

express sincere thanks and deep appreciation to all the authors for their remarkable contributions to this report.

We wish to commend in particular the significant contributions to people who helped review the annual report including Director Qi Yan, Ms Shi Xiaochen and Ms Chai Hui from the Development Research Center of Shanghai Municipal Government, Professor Johannes Gluckler from University of Munich, Professor Robert Panitz from University of Koblenz, Professor Gao Xiangdong, Professor Kong Xiang and Associate Professor Yi Zhenzhen from East China Normal University .

Last but not least, we wish to thank the press Shanghai Scientific & Technical Publishers and our translation service provider YGYM Translation Service Co., Ltd . for all the thorough and meticulous work!

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Chapter 1

Introduction



Introduction¹

In times of converging global crises, ensuring urban areas are equipped with the necessary resources and capacities to drive sustainable urbanization is more important than ever. As places of opportunity and better qualities of life, cities play a pivotal role in realizing this ambition, and must strive to achieve inclusive and pluralistic service-oriented societies, sustainable economies, green, ecologically sensitive and climate-resilient environments, cultures that emphasise innovation and heritage, and efficient and synergistic governance models. Inclusive approaches to multilateralism, financing and management are thus key to ensure cities achieve their potential and work for everyone. Under the theme of “Integrating resources for a sustainable urban future for all”, the *Shanghai Manual: A Guide for Sustainable Urban Development in the 21st Century (2023 Annual Report)* unpacks the current state of urbanization and the challenges and opportunities that are presented to cities around the world. Accordingly, it examines how cities can effectively utilize resources to advance sustainable urban development pathways. The manual draws upon 25 best practice case studies across the five pillars of urban development: economic, social, environmental, cultural and governance, as well as international cooperation presenting over 20 transferable and actionable policy suggestions for mayors, local governments, planners and designers, and other urban actors in the global community to catalyse the transition towards achieving sustainable cities and communities. In addition, it explores the challenges and opportunities associated with financing sustainable urban development, presenting a number of practical tools for practitioners.

Background: strained financial resources for urban development

As the complexity of urbanization continues, cities are challenged to generate new innovative strategies and solutions to advance sustainable urban development. Globally, crises are becoming more frequent and interconnected, with urban populations at greatest risk. Rural-to-urban migration has seen people search for better opportunities: nearly 7 out of every 10 people are now projected to live in cities by 2050². As cities are expected to generate over 80 percent of global gross domestic product (GDP), well-managed urbanization will be essential to ensuring sustainable growth². Where global crises and inequalities are leading to significant urban migration increasing the strain on resources,

emerging urbanization patterns call for proactive urban strategies and investment. Integrating the resources needed to ensure sustainable urbanization at scale is now imperative from urban financing and investment through to data and technology, human capital, and partnerships and networks. Urbanization must unfold in a manner that preserves natural resources, social and economic capital as well as cultural assets, necessitating fundamental shifts in urban policy and practice.

In recent years, cities and regions globally have experienced economic slowdown due to high global inflation, reduced investment and the lagging impact of the COVID-19 pandemic. Where the global economy is expected to grow by 1.7 percent in 2023 and 2.7 percent in 2024, a sharp downturn in growth is projected to be widespread, with 2023 forecasts revised down for 95 percent of advanced economies and nearly 70 percent of emerging market and developing

¹ This chapter was written by UN-Habitat experts.

² World Bank Group, (2023). Urban Development. URL: <https://www.worldbank.org/en/topic/urbandevelopment/overview>.

economies¹. In forthcoming years, many cities and regions are expected to struggle with weak investment and sluggish growth, hindering development progress in areas such as poverty reduction, healthcare, basic service delivery, infrastructure and climate change mitigation. Data shows that as it stands, most if not all Sustainable Development Goal (SDG) 11 targets will not be met without drastic changes in urban policy and investment². With progress declining on the implementation of the SDGs, widening inequalities are seeing the most marginalized people being left further behind.

The New Urban Agenda, the Addis Ababa Action Agenda and the three Habitat conferences held since 1976 (Habitat I, II, III) call for further resources to harness the economic potential of cities. Globally, action on financing sustainable urbanization is failing whereby significant deficits in urban investment are further aggravating inequalities, pollution and environmental deterioration whilst driving up expenses, impacting minority and marginalized and low-income groups the hardest. Critically, shortcomings in international investment are only serving to maintain existing discriminatory structures and inhibit the national development progress made available through sustainable urban development. Urban actors and decision-makers are now pushed to integrate secure financing mechanisms for urban development within the bounds of national development frameworks, as well as overseas development assistance and foreign direct investment frameworks. Local governments must garner the capacity and responsibility to mobilize endogenous revenue sources, whilst national governments are urged to provide fiscal transfers to subnational governments, notably within small, intermediary and rapidly growing cities to effectively produce positive development results.

Whilst addressing the challenges of urban development requires multi-stakeholder collaboration and partnerships between countries, regions and cities, targeted responses to urban crises have been slow

among multilateral actors and national governments globally. As was called for at the eleventh session of the World Urban Forum, multilateral actors need to integrate science, research and data into local governments to promote the mobilization of the political will and resources required to drive policy shifts for acceleration progress on sustainable urban development at scale. At the same time, international agendas on urban development have deemed achieving safety and security in regard to climate change responses, public health, urban food systems and environmental protection as utmost priorities.

In light of the resourcing deficits and new systems needed to achieve sustainable urbanization, this manual presents a selection of the successful global urban practices which are driving sustainable urbanization forward, showcasing the transformative potential that cities possess in accelerating progress in global development agendas.

Structure and highlights

Reflecting the changing realities of cities and urban life, this manual builds upon the previous edition, showcasing new inspiring practices in sustainable urban development under the theme of "Integrating resources for a sustainable urban future for all". It draws upon best practice case studies that present transformative solutions to emergent urban challenges, demonstrating the potential of innovative, people-centred city practices in catalysing equitable, resilient and sustainable urban futures for all. Accordingly, it draws light on actions that are pioneering this transition across different urban contexts, as well as the shortcomings and resources that are now required to speed up the process. As a practically oriented product, the manual offers tangible recommendations and tools for direct consideration and implementation

¹ World Bank Group, (2023). Global Economic Prospects.

² UN-Habitat, (2023). Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 Synthesis Report, High Level Political Forum 2023. URL: https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf.

from the global community of urban practitioners. Against the backdrop of increasingly strained financial resources for urban development, the manual will thus analyse the merits and highlights of successful cases from economic, social, environmental, cultural and governance related perspectives, explore urban synergies through the lens of international cooperation, and ultimately provide a unique guide to financing sustainable urban development.

The manual contains eight chapters which are split into three sections. Following the introduction (section one), the manual consists of five thematic chapters reflecting the different domains of sustainable urban development in which best practice case studies are presented with reference to their associated theme (section two). The case studies are divided into three core sub-sections including (1) case background which introduces the context and challenges at hand; (2) implementation process which demonstrates the practice delivery process; and (3) reference experiences which serve as translatable knowledge components for urban development practitioners. Each thematic chapter also presents a set of policy suggestions which draw upon the associated case studies collectively. The manual is concluded by two specialized chapters on international cooperation and financing sustainable urban development which collate knowledge on urban safety and security, and urban financing mechanisms respectively (section three).

Economy: diversified financing and sustainable economic development

Driving economic growth and innovation, jobs and national GDP, urban economies are hugely significant in the context of global prosperity, however, they must now align with resource efficient models to achieve sustainable urbanization. To produce cities in which the benefits of economic development are more equitably distributed, urban economic transitions can help to foster inclusive growth, reduce poverty and increase social mobility. This chapter explores the potential for cities to adopt new approaches in economic development, promoting economic innovation and business development whilst maximizing resource use efficiency and minimizing harmful environmental

impacts. The first case of Start-Up Chile presents an innovation and entrepreneurship support programme in Santiago that is increasing market opportunities for local entrepreneurs, stimulating economic innovation and attracting talent via global collaboration. The second case of High-Tech Gründerfonds in Bonn, Germany highlights how diversified funding is accelerating technology start-ups and incubating a local technological innovation ecosystem. In the third example, the chapter showcases the case of Amsterdam in which the development of circular economic strategies via a "Doughnut Economy" model is kickstarting the shift towards a resource efficient and environmentally sensitive economy that perpetuates principles and sharing, reuse and recycling. The fourth case highlights the Chinese Sanming carbon sink trading system showing the potential for cities to harmoniously blend economic development with environmental preservation, advancing ecologically sensitive economic development pathways. Lastly, the case of Quzhou, Zhejiang, presents green financial reform as an important pathway to promote sustainable development, incentivising social actors in various fields to connect to promote green, low-carbon transformation through differentiated and targeted financial policies.

Society: social capital and inclusive community development

Urban society plays a fundamental role in driving sustainable urbanization, influencing the development trajectory of cities from the community level up. As such, social capital serves as an integral resource to enhance urban sustainability and prosperity whereby social networks are the glue that creates cohesive neighbourhoods and communities with the ability to facilitate collective action, mutual support and cooperation towards common goals. This chapter highlights transformative municipal initiatives that have advanced social development within urban areas, contributing to safer, more equitable and inclusive urban societies. The first case of the Shanghai Xintiandi of Charity and Voluntary Services Park in China showcases the role of cross-sectoral collaboration in tackling significant social issues within the city, promoting social innovation and entrepreneurship

in public welfare activities, . The second example, Colorado's Creative Community DIY programme in the United States of America, highlights the potential of creative community projects in enhancing social capital and local development opportunities whilst strengthening community vitality. The third example is the case of Bogota's CARE blocks, an innovative social initiative that is helping to empower female caregivers providing them with proper access to services, education and livelihood opportunities in a society in which historically they have largely been excluded. And in a fourth example this chapter presents the case of Housing Monitor, a social organization working towards housing justice in Beirut, demonstrating the importance of partnership building and community mobilization in the transition toward equitable housing in the city.

Environment: green, ecologically vibrant and resilient cities

At the forefront of the battle against climate change, urban areas are more pressed than ever to integrate environmentally sound practices in their development pathways. Focusing on building climate resilience and promoting urbanization in parallel with the protection and safeguarding of ecological capital and the natural environment, this chapter presents several unique insights into how cities are driving environmentally sustainable urban development. The first case highlights the Wanli neighbourhood in Shanghai's Putuo district, China in which ecologically balanced development has created a community in which local citizens live and work in harmony with nature. The second case in Dakar presents the work of UrbaSEN and the Senegalese Federation of Inhabitants, in which community-led urban flood risk management has worked to enhance resilience in some of the city's most vulnerable informal settlements. The third example of the Urban Micro Parks initiative in Fortazela, Brazil highlights the impact of urban greening and the renaturalization and repurposing of neglected urban spaces in advancing environmental quality, as well as positive social transformations at the community level. And the fourth case of the Rotterdam RUGGEDISED project in the Kingdom of the Netherlands captures

the potential of smart energy solutions in the city's Heart of South district, working to optimize energy efficiency, reduce emissions and alleviate detrimental environmental impacts.

Culture: culture of innovation and urban heritage

As cultural melting pots, culture and historic heritage within cities serve as invaluable but underutilized and less recognized urban components which, when leveraged strategically, can play a key role in advancing sustainable urban development. Delivering multiple socioeconomic benefits, it is important for cities and urban settlements to better manage their cultural heritage, ensuring the safeguarding of tangible infrastructure and promoting diversity with regard to their intangible cultural heritage assets. The first case of Singapore assesses the Cultural Donation Matching Fund which has improved financing for local arts and cultural organizations via the provision of matching subsidies and improved self-financing abilities for the organization themselves. Critically, this highlights the benefits of developed multifaceted partnerships between donors and cultural organisations, as well as ensuring the balanced and flexible use of public funding for arts and culture. In a second example, San Francisco's Community Arts Stabilization Trust in the United States of America indicates the value of public-private partnerships in supporting arts and culture organizations via a "lease to own" funding mechanism in the context of an affordability crisis within the sector. The third case of Yangon explores the critical importance and impact of fostering cooperation between building owners, governments and social organizations to revitalize and regenerate threatened heritage infrastructure. And the fourth case covers the micro-renovation of Xiaoxihu Block, Nanjong, China whereby via the use of sustainable co-financing solutions, multi-party collaboration has seen urban renewal centred around heritage conservation. The chapter also provides a glimpse into the impact of the German Hamburg crowdfunding platform Nordstarter on the establishment of micro and small cultural and creative enterprises in the city.

Governance: cross-regional governance and multi-dimensional shared cities

The management and governance of urban areas is integral in shaping the development, sustainability and quality of life in cities. In response to the increasing complexity of urban landscapes, this chapter presents insight into new innovative models of urban governance and governance resources, showcasing successes of cross-regional cooperation to innovation data, technology and digitalization. The first case of the Eindhoven-Leuven-Aachen technology triangle – a dynamic technology region – showcases the impact of strengthening cross-border governance, science and technology cooperation in driving regional competition and agglomeration, and technological innovation, helping to build new collaboration networks in Belgium, Germany and the Kingdom of the Netherlands. The second case of the Yangtze River Delta G60 Sci-tech Innovation Corridor in China highlights the importance of cross-sector planning and smart resource integration in optimizing spatial development. The third example is the Smart City Platform in Seoul which draws light to the capacity of digital governance resources to increase efficiency in city management to enhance citizen's access to services, and build more equitable and inclusive cities. A fourth example, "Tianguis Digital" highlights the transition to open public procurement in Mexico City, creating more transparent and accountable governmental procurement and thus a higher-quality and more prosperous city. And in a fifth case the care of Chengdu, China demonstrates how community foundations have helped to regenerate local communities utilizing large-scale governance along with micro-funds via innovative fund operation models.

International cooperation: mobilising resources and promoting transformative urban development

The increasing severity and complexity of urban challenges calls for international cooperation to resource safety and security in urban development. Ensuring global cooperation among cities is essential to promote sustainable development and can support the international community to work in cooperation

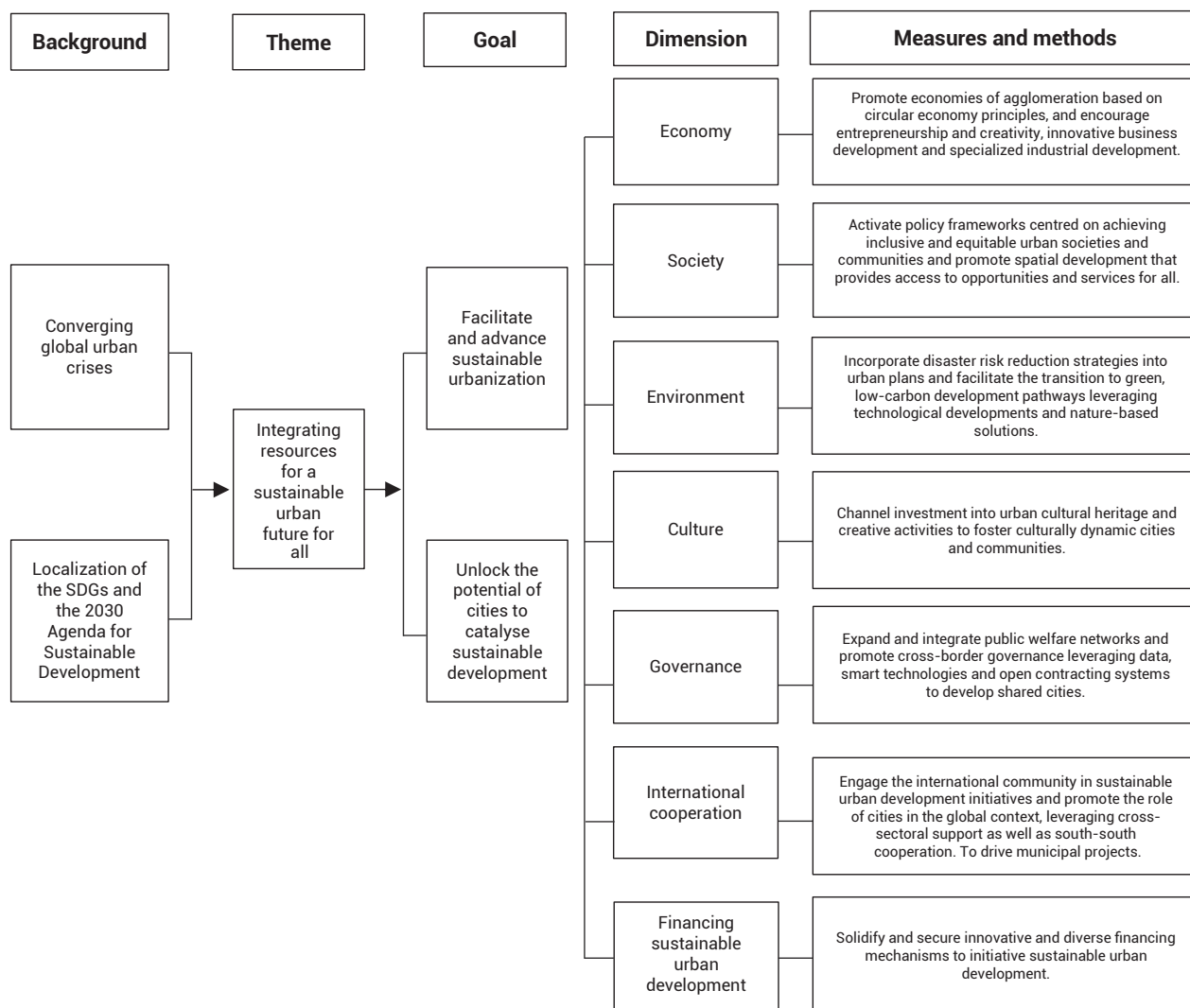
to successfully address current challenges. Where the climate crisis has accelerated drastically in recent years, the international community has attached great importance to locking in climate adaptation and energy transitions to secure climate-resilient communities. This chapter highlights several innovative cases from cities which have integrated resources and leveraged international cooperation to drive forward sustainable urban development and improved urban prosperity. The first case analyses the Myanmar Clean Energy Based Forest Protection demonstration in which multi-party cooperation has helped to more effectively allocate resources to support local environmental protection and clean energy transition in the village of Thanbayrakhon. The case highlights the embodiment of an inclusive and just transformation in Myanmar, as well as the global benefits of resource sharing and communication based on clean energy diplomacy, resource integration and project implementation via multi-stakeholder cooperation. In a second example to highlight the importance of international cooperation in facilitating knowledge exchange, the work of Connective Cities in promoting risk-informed urban development in Sub-Saharan Africa is presented. This case demonstrates the benefits of adopting strategies of mutual sharing and learning, demonstrating the formulation of an international community of practice for sustainable urban development that encourages the diffusion of technology and innovation via international cooperation. The final case explores the deployment of global cooperation to help transform transit-oriented mobility in Dar es Salaam, Tanzania focusing on the use of financing and collaboration to promote infrastructure innovation in regard to a city-regional public transit-oriented strategy.

Financing sustainable urban development

Underpinning the implementation of urban infrastructure development and services delivery, financing urban investment is paramount if cities and municipalities are to achieve the aspirations of the SDGs and the New Urban Agenda. Robust financial architecture is essential to address the complexity and scale of urbanization along with the challenges that it brings. Where new systems are sought, this chapter

identifies the challenges that cities currently face in enhancing urban financing from both institutional and policy perspectives – with particular regard to developing and emerging economies in the global south. In addition, it investigates strategies and instruments by which cities can increase their access to financing and explores the emerging trends and windows of opportunity, thus presenting a way forward

for financing effective urban development investment. A number of UN-Habitat tools to support municipalities in financing urban development are also introduced, including those for own source revenue analysis, land-based financing and slum upgrading financing, in addition to the UN-Habitat Cities Investment Facility, see Figure 1.1.



Source: Developed by the authors

Figure 1.1 Log diagram highlighting the structure and division of the manual's thematic components

Case selection and principles

Cases presented within this manual showcase outstanding contributions to sustainable urban development within their respective thematic domain. To ensure impactful and high-quality cases, they were selected on the basis of six core criteria: (1) their recognition as best practices in urban development; (2) their use of innovation throughout implementation processes; (3) their commitment to driving sustainability within urban development processes; (4) their contribution towards achieving more inclusive cities and communities; (5) their ability to be replicated and scaled across urban contexts; and (6) their relevance to current urban challenges and modernity in regard to their implementation and impact.

Recognizable: Cases are recognized as best practices within the international community, for example, via formal award nomination from authoritative organizations or prestigious awards programmes, through recommendation by official websites, or through their inclusion in international journals and publications. Case studies can be seen to have made outstanding contributions to sustainable urban development within their respective thematic domains.

Innovative: Cases are cutting edge and demonstrate innovation in their contribution to sustainable urban development, including but not limited to planning and design, science, technology and digitalization, social and community practices, city management and policy formulation processes as well as financing and resourcing, and partnership building and cooperation.

Sustainable: Cases demonstrate sustainability as a fundamental principle within their respective practices and process in relation to their associated connotation, contributing to the international repository of urban best practices that are supporting work to advance sustainable urban development.

Inclusive: Cases are attentive to issues of exclusion, inequality and inequity in the city and urban

communities, with a particular lens on supporting individuals and communities who are being left behind including women and girls, the elderly, children and youth, individuals with disability, refugees and other vulnerable groups.

Replicable: Cases are versatile with respect to the application of their practices across different urban contexts, notably in cities with different scales and populations, environmental conditions, cultures, and stages of development. Cases were selected on their ability to be scaled and applied to different urban contexts.

Up-to-date: Cases are up-to-date and reflect upon current challenges in urban development globally, and thus ensure that the presented case study practice processes can be applied practically and serve as key reference points to global urban development challenges in the present day.

In addition to these core selection criteria, cases demonstrate actions that have actively contributed towards effective resource integration for sustainable urban development throughout their implementation.

Challenges and opportunities in urban development

Delivering on sustainable urban development necessitates the integration of key resources for cities and urban actors. As global populations continue to concentrate in urban areas, the effects of urbanization are felt across areas of housing and infrastructure, industry and employment, the environment, cultural heritage, and governance and management. This manual analyses and assesses the challenges and opportunities that urbanization presents to cities and urban settlements across the five thematic development dimensions.

Comprised of a complex social fabric with a diverse

range of people, cultures and activities, cities are faced with a myriad of challenges in pursuit of achieving equitable and prosperous urban societies. Issues of housing affordability, employment, social inequality, crime and safety, infrastructure healthcare and education, and access to basic services continue to constitute major obstacles in urban areas globally. Cities exhibit stark social inequalities with growing divides between rich and poor – 75 million more people were living in extreme poverty in 2022 compared to pre-COVID-19 pandemic projections¹. Spatial fragmentation is seen to persist across all continents in which cities are grappling with income inequality, residential segregation and an uneven distribution of job opportunities, all of which are exacerbating issues of exclusion. The divide in urban prosperity is especially evident when considering that 1 billion people are living in slums and 318 million people are homeless globally². Such socioeconomic and spatial fragmentation thus poses threats to peace and stability in urban areas. With dense concentrations of human capital, economic activity and resources, cities are positioned to promote a spatially equitable distribution of services, affordable and adequate housing for all, access to the formal job market and high-quality social infrastructure to facilitate for improved qualities of life. Through socially equitable development models, urban areas can secure socially cohesive and inclusive communities, reduce poverty and inequality, and in turn build social stability and social equality.

With growing international economic competition and escalating environmental crises, cities are under pressure to transition to more sustainable, innovative and efficient economic models. Compounding this, the COVID-19 pandemic and the global economic crisis have exacerbated economic inequalities and halted progress of sustainable economic development. Mitigating the adverse environmental impacts of urban economic activity is critical, yet cities are also faced with issues of unemployment and underemployment, economic inefficiency as well as income inequality. Where poorly planned and

governed urbanization sees many cities still growing in sprawl patterns, dispersed access to opportunities negates the development of agglomeration economies thus preventing prosperous economic development. Promoting sustainable local economic development offers cities the possibility to enhance resource flows and efficiency, stimulate innovation and collaboration, increase formal job opportunities and reduce long-term municipal operational costs. With increased market access, higher-quality infrastructure and connectivity, specialized industrial clusters and highly skilled workforces, cities are positioned to become dynamic innovation ecosystems which can drive more sustainable economic growth, and thus economic and social productivity as a positive cycle of urbanization. At the same time, cities can leverage the benefits associated with shifting to new economic models and growing economies of scale and agglomeration to accelerate sustainable industrialization, economic innovation and economic prosperity. With a growing focus on environmentally sustainable economic growth, the emergence of sharing economies based on circular economy models are helping businesses and enterprises to stimulate innovation, generate new revenue streams, unlock access to new markets and increase formal employment.

Globally, commitments and actions focused on combating the climate crisis remain far below expectations whereby cascading environmental crises are posing major threats to urban areas. With repercussions becoming increasingly severe, events such as more intense and frequent extreme weather and natural disasters are hitting the most marginalized urban communities the hardest. With complex systems and condensed populations, cities and urban areas are hotspots of climate vulnerability. Between 3.3 to 3.6 billion people were living in highly vulnerable climate contexts in 2022, an increase of 300 million, with 70 percent of cities now dealing with the environmental, social and health impacts of climate change for urban populations. Where 800 million people are projected to live in low-lying coastal city zones by 2050, issues

1 UN-Habitat, (2022). UN-Habitat Annual Report 2022. URL: https://unhabitat.org/sites/default/files/2023/06/unhabitat_annualreport_2022.pdf.

2 UN-Habitat,(2023).Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 Synthesis Report, High Level Political Forum 2023. URL: https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf.

of sea level rise and inland flooding could amount to global economic costs of USD 1 trillion by the same year¹. Increases in extreme weather will have costly implications on the provision of urban basic services, housing and other core infrastructure in cities. Huge disparities exist in the ability of cities around the world to respond to climate shocks, with those in less developed countries often lacking the resources needed to take sufficient action. This is especially pertinent given that the highest population growth is expected to occur in the less developed regions of South and East Asia and sub-Saharan Africa². Climate induced inequalities will likely increase in the future. Global urbanization continues to exacerbate environmental degradation and pollution in which unbalanced, rapid growth infringes into natural ecosystems and more intense urban activity increases greenhouse gas emissions as well as waste and water pollution. Facing a multitude of environmental threats, with focused interventions and the necessary resources cities can sufficiently prepare for and mitigate future climate risks, creating resilient communities and sustainable urban development pathways which promote environmental sustainability and integrity.

Culture remains an underleveraged component in urban development. Where significant linkages exist between the protection of urban heritage and the health and vitality of urban economies, cities are challenged to devise strategies to utilize and safeguard cultural and heritage assets. Accordingly, creative industries account for up to 13 percent of employment in major cities, and thus constitute an integral part of the many urban economies². The protection of heritage is especially pertinent in small to medium sized cities in developing countries given their significant concentration of heritage-related activities in regard to local jobs and economic flows. Issues of displacement from gentrification, cultural homogenization and cultural dilution remain as risks from poorly managed urban development whilst armed conflict and war, natural disasters, excessive tourism development

and unplanned urbanization present major dangers to historic heritage sites. With a decrease in expenditure on cultural sector support in many countries following the COVID-19 pandemic, it is more important than ever to reinforce and adopt culturally sensitive sustainable urban development strategies. Cultural heritage plays an integral role in enhancing social cohesion and cultural diversity, identity and well-being within communities, and culture and creativity presents cities with the opportunity to shift to post-industrial economic models centred on knowledge and innovation. The transformation of urban centres into cultural and creative ecosystems and destinations will be pivotal to their success.

Well-managed urbanization is integral to maximizing the potential that cities have to offer, yet as intricate and dynamic systems with multiple sectors and stakeholders, urban governance still faces shortcomings in optimizing efficiency and decision-making. Many city governments globally are failing to realize inclusive governance models which account for all citizens, lacking transparency and accountability, and subject to siloed approaches with a lack of vertical and lateral cooperation. Furthermore, whilst technology is playing an increasingly prominent role in driving city operations and urban services, not all residents are afforded equal access to digital resources and information. A growing digital divide for older persons and persons with disabilities constitutes a major barrier in light of the digitalization of cities. With the convergence of major crises that urban areas currently face, crystallizing new urban governance models that hinge on principles of inclusion and equity are critical in pursuit of sustainable urbanization. Good governance can transform quality of life in cities, promoting more integrated approaches to urban development, fostering synergies and pooling resources, and therefore accelerating achievement of the 2030 Agenda for Sustainable Urban Development and the New Urban Agenda.

1 C40 Cities. Sea Level Rise and Coastal Flooding. URL: <https://www.c40.org/what-we-do/scaling-up-climate-action/adaptation-water/the-future-we-dont-want/sea-level-rise/>.

2 UN-Habitat,(2023).Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 Synthesis Report, High Level Political Forum 2023. URL: https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf.

Delivering urban solutions

Countering the myriad of interlinked challenges that urban areas are presented with, successful practices and initiatives around the world reaffirm the significant potential that cities and municipalities have in generating sustainable long-term solutions in a changing urban landscape. The cases highlighted throughout this manual offer valuable insights for policy and practice to support cities and urban practitioners to generate their own solutions to challenges within their own respective contexts.

In pursuit of achieving inclusive, equitable and prosperous urban societies, cities must pursue growth in a way that works for all citizens, leaving no one behind. Inclusive urban policy frameworks are critical to address social issues at the forefront of global urban development agendas such as increasing access to decent housing, public services and infrastructure, creating livelihood opportunities, achieving gender equality and ensuring citizen participation in community development processes. The development of housing delivery mechanisms that focus on protecting the most vulnerable tenants and the communities at greatest risk will help cities take huge strides to enhancing social prosperity, incorporating affordable housing strategies and rent control measures which are reinforced by legislation. Through innovations in spatial planning and design of the urban fabric, cities can help address issues of spatial fragmentation and inequality. Flexible infrastructure solutions can be leveraged to improve public service integration into neglected communities, and to unlock access for groups subject to reduced access including women and girls, persons with disabilities, the elderly, and migrants and refugees to build social equity. It is also important that cities capitalize on social welfare organizations as a means to help stimulate social innovations and attract new diverse investment via the integration of incubators, laboratories and funds. Similarly, by encouraging the application of diverse creative community projects, cities can pioneer new social capital, enrich and revitalize urban societies and catalyse innovative community development.

With high concentrations of human capital, businesses and resources, cities can leverage agglomeration economy effects to stimulate economic productivity, innovation, industrialization and efficiency, and generate innovative economy ecosystems. The growing emergence of urban economies founded around principles of sustainability and circularity show that cities can shift to new innovative economic models, integrating specialized industrial clusters and high-technology industry. Circular economies can increase resource conservation and reduce waste use through material reuse and recycling, create new jobs and improve economic resilience to external disruptions, hence producing stronger and more robust economies. To this effect, cultivating favourable business ecosystems for entrepreneurs and start-ups is vital to stimulate urban economic innovation, whereby innovation hubs and technology incubators can help to support emerging industries and stimulate economic growth. Cooperation between local businesses, research institutions and start-ups will drive economic diversification, connect industry experts, promote knowledge sharing, promote research and development activities, and increase access to resources such as finance and investment, infrastructure, facilities and established customer bases.

Securing environmentally sustainable and resilient urban development necessitates a multifaceted approach spanning policy and legislation, integrated planning and design, as well as innovative technological adoption and multilevel governance mechanics. By leveraging green infrastructure and nature-based infrastructural components, cities can raise urban environmental quality for inhabitants and promote more cohesive communities, reduce pollution and create urban landscapes that are better suited to adapt to the effects of climate change. The production of comprehensive disaster risk reduction strategies developed in conjunction with local communities themselves enables city governments to build resilience that is spatially equitable ensuring the most vulnerable neighbourhoods are adapted to withstand natural disasters and climate shocks. Community engagement and participation in urban climate action planning can be seen to promote co-design of the city, and help better tailor resilience plans to local needs

and conditions. In addition, where energy consumption is a significant contributor to urban emissions, cities can promote the application of emerging smart technological innovations in energy provision and system design, offering them sustainable low-carbon pathway alternatives to conventional non-renewable energy systems. By amalgamating these strategies, cities can evolve into resilient and harmonious ecosystems that prioritize the well-being of both their inhabitants and the environment.

With immense potential to catalyse change and advance sustainable urban development, culture and heritage in urban areas requires a strategic approach in order for cities to leverage it as a transformative tool. To facilitate culturally vibrant urban ecosystems, targeted cultural investment policies are pivotal to nurture cultural activities, creative industries and the arts. Where issues of security remain for cultural organizations, local governments can adopt flexible land use policies, including lease to own property models as well as loans and subsidies. It is imperative that urban regeneration solutions provide the necessary infrastructure and amenities that cater for creative activity in neighbourhoods. These protective measures that promote and support cultural and creative offerings will help cities transition into more dynamic ecosystems in which local creative industries and expressions can expand and grow. Accordingly, stimulating creativity in cities requires removing barriers, providing safety nets and introducing

mechanisms to nurture creative talents.

New approaches to urban governance are required to achieve shared cities and support the implementation of sustainable urbanization. Transitioning to holistic governance approaches which promote cross-border cooperation and incorporate agile, flexible approaches to planning and policy will be necessary to strengthen responses to crises and shocks in urban areas and improve cooperation on urban development matters both regionally and internationally. The development of comprehensive public welfare networks which streamline city services delivery into local communities can help build multi-agency community governance structures which work for the benefit of local people themselves, protecting their well-being and thus the health and vitality of communities. Similarly, by strengthening community foundations, cities can help to bring governance closer to communities. Smart city technologies also offer cities the infrastructure to build high-quality, comprehensive databases to facilitate improved decision-making, promote digital literacy and reduce the digital divide via digital inclusion programmes, enhance urban service delivery, and expand citizen participation in city and community level development. In response to issues of corruption, limited participation and a lack of trust in governance processes, open contracting mechanisms can work to alleviate these issues and build quality-standards into procurement systems designed on the premises of transparency and accountability.

Chapter 2

Economy: diversified financing and sustainable economic development



Introduction¹

The current global economic downturn has put governments in financial straits, reducing their ability to invest in many areas. Diversified financing has never been more important as an additional source of funding. It covers different financial instruments and mechanisms including public-private partnerships, green bonds, private equity funds and risk-sharing. By attracting international cooperation and private sector participation, supporting innovation and SDGs, and spreading risks diversified financing offers the government funds needed and promotes long-term economic prosperity. Governments and the international community should therefore actively explore diversified financing mechanisms to solve current and future economic problems.

Diversified financing accelerates sustainable economic development. Sustainable development involves not only economic growth but also environmental protection, social equity and long-term prosperity. Large-scale public spending may increase resource waste and environmental pressure, while diversified financing is more conducive to directing funds towards sustainable projects. Diversified financing promotes innovation and technological development. Generally, the private economy will more readily pursue innovative projects and high-yield opportunities, which are more instrumental in the development of new technologies and business models. Cooperation between governments and the private sector has also created more opportunities for technological innovation, thereby increasing competitiveness and the ability to cope with the global economic downturn. Diversified financing also helps disperse risks. Reliance on traditional fiscal funds may put financial pressure on governments, while diversified financing spreads risk with more sources of funds, reduces financial uncertainty and helps maintain economic stability.

International cooperation is key to broaden funding sources. The first case example is the startup accelerator in Santiago which exemplifies the positive impact of global collaboration. Through exchanges and cooperation with innovation and entrepreneurship ecosystems in other countries and regions, the programme has attracted fresh ideas and experience from all over the world, increasing development opportunities and broadening the market for local entrepreneurs. Global collaboration also provides opportunities for foreign entrepreneurs to start businesses, promoting Chile's entrepreneurial ecosystem to the world.

In terms of public-private capital partnerships, the second case is the High-Tech Gründerfonds (HTGF) in Bonn, Germany a successful example of supporting start-ups. Through financial and policy support, HTGF accelerates start-ups in the high-tech field pumping new blood into the German technological innovation ecosystem. This case reveals the importance of cooperation among multiple subjects such as the government, institutions and enterprises, as well as effective ways to help start-ups that are short of funds through financial and policy support.

External crises may come at any time, and the transformation of economic development models has become a major way to improve the resilience of urban economic development. A series of circular economy strategies and implementation plans have been launched in Amsterdam with the goal of building a renewable and inclusive city within the tolerance of the earth's environment. The action plan demonstrates how to create an innovative and high-

¹ This chapter was written by the team of the Urban Development Research Institute of East China Normal University including Zeng Gang and Zhu Yiwen with Robert Panitz (University of Koblenz-Landau, Germany) and Zou Lin (Heidelberg University, Germany). The case of Amsterdam was provided by UN-Habitat. The case of Quzhou was provided by the special leadership team of the Top 10 Special Projects in Quzhou's urban development: Yang Xiaoguang, Wang Jingen, Bao Liwen, Lin Kai, He Huilin, Hu Xiaoyong, Su Chengjian and Sang Jiaqi with Fan Yuan, Hu Jing, Zhai Jian, Yu Kai, Zhao Xingyu, Wang Qiuyang, and Meng Wei from the China Academy of Urban Planning and Design.

quality development market; optimize the access and use of resources by local residents, foreign tourists and local businesses; mitigate external risks and shocks; and accelerate the transition from traditional economic models to circular economies.

The transformation of economic development models is also inseparable from innovative mechanism design. The carbon sink trading system in Sanming, Fujian, China is an organic combination of sustainable economic development and ecological environmental protection. By protecting and restoring forest resources, the carbon sequestration project maximizes ecological benefits and drives local economic transformation and development. This case proves that sustainable economic development and ecological environment protection are not contradictory but can promote each other and develop together.

In terms of finance, the green financial carbon account system in Quzhou, Zhejiang, China demonstrates the key role of technology and digitalization in sustainable economic development. Through a complete digital ecosystem, the green financial carbon account system improves the efficiency and penetration of green finance, and lays a scientific foundation for sustainable economic development. This case demonstrates that technology and digitalization, as the engines of sustainable economic development, are of great significance for solving frontier problems in the economic field.

In the context of growing challenges to global sustainable development, the theme of this chapter should be important for the next steps in practice. The authors take an in-depth look at financing models in the economy that support urban industries and how they can break down barriers to achieving economic sustainability goals, thereby enhancing the economic sector's potential for sustainable development and the future financing capacity of cities. Through the detailed analysis of the practical experience of different cities and the discussion of the application of financing models in sustainable economic development, this chapter provides reference experiences for accelerating urban economic transformation and upgrading, realizing the SDGs, supporting international cooperation and experience sharing, and driving sustainable urban development and prosperity.

Case studies

Santiago, Chile **Pooling global resources to drive local development: a startup accelerator**

Case background¹

Start-Up Chile is an innovation and entrepreneurship support programme based in Santiago, launched by the Chilean government in 2010. Its primary objective is to attract startup entrepreneurs from around the world to launch a business, providing them with financial and

resource support, and thereby fostering the growth of the local innovation and entrepreneurship ecosystem. According to statistics available on its official website as of June 2023, the startup accelerator has facilitated global sales of over USD 1 billion for the entrepreneurs it has funded. The investment portfolio of Start-Up Chile showcases a remarkable achievement of raising more than USD 1.2 billion, contributing to the advancement of over 2,000 startups representing 85 countries and regions worldwide.

Start-Up Chile prioritizes the attraction of global resources as evidenced by the significant presence of foreign companies participating in the programme, outnumbering Chilean companies by approximately

¹ Start-Up Chile. URL: <https://startupchile.org/>.

fourfold. This international engagement has enabled Start-Up Chile to extend its influence across the globe, positioning itself as a source of inspiration for public accelerator programmes in over 50 countries including

IncubAte, Argentina; Start-Up Brazil; Ruta N Colombia; Start-Up Jamaica; MaGIC, Malaysia; Startup Mexico; Startup Peru; and K-Startup Grand Challenge, Republic of Korea, see Figure 2.1.



Source: Government of Chile Ministry of Foreign Affairs. URL: Source: <https://www.chile.gob.cl>

Figure 2.1 Global partners of Start-Up Chile

As a prominent player in Latin America's development landscape, Chile has demonstrated a strong commitment to driving innovation and entrepreneurship. With the dynamic shifts in the global economy and rapid advancements in science and technology, the government recognizes the paramount importance of fostering innovation and entrepreneurship for economic development and social progress. Innovation and entrepreneurship can drive technological progress and industrial upgrading, enhance economic competitiveness, create jobs, promote social innovation and improve

people's livelihoods. Therefore, the government is keenly determined to establish a robust and efficient innovation and entrepreneurship ecosystem to attract more prominent entrepreneurs and innovative enterprises, facilitate the commercial applications of research and development (R&D) results, and achieve sustainable economic and social development.

The Chilean innovation and entrepreneurship ecosystem is encountering several challenges during its developmental phase. The country lacks a robust innovation and entrepreneurship atmosphere as

traditional corporate cultures and management models impede the spirit of innovation and entrepreneurship. The venture capital market in Chile is also relatively underdeveloped leading to inadequate financial support and limited availability of venture investors. Consequently, entrepreneurs face considerable difficulties in securing the necessary funding for their ventures. Due to its relatively small size, Chile possesses a limited domestic market, restricting the growth potential and market expansion opportunities for certain projects.

The transformation of Chile's scientific research achievements into practical commercial projects requires more vigorous efforts. Scientific research institutions and higher education establishments lack sufficient measures in innovation and entrepreneurship support, resulting in challenges when converting research outcomes into commercial successes. The government therefore faces an urgent need to address this issue, overcome the barriers to innovation and entrepreneurship, and promote the healthy development of the innovation and entrepreneurship ecosystem.

Due to the challenges of the innovation and entrepreneurship ecosystem, the government recognizes the paramount significance of international cooperation. Embracing international collaboration can not only attract exceptional entrepreneurs and innovative enterprises but also expand market opportunities and resources for local entrepreneurs while bolstering the competitiveness of domestic enterprises in the global market. By engaging in exchanges and cooperation with other countries and regions, Chile can glean insights from successful experiences and innovative models thereby accelerating local innovation and entrepreneurship efforts. Consequently, the government has made the strategic decision to upgrade Chile's innovation and entrepreneurship ecosystem through international cooperation and attract the participation of more international entrepreneurs and investors.

Under this context, the government made a significant move towards propelling the development of the innovation and entrepreneurship ecosystem by establishing Start-Up Chile in 2010. Start-Up Chile aims to build an innovation and entrepreneurship centre,

attracting talented individuals and promising startups with entrepreneurial potential and providing them with support in capital, knowledge, network and market access. In this way, the government hopes to promote economic diversification, motivate innovation and entrepreneurship, and increase Chile's competitiveness in the global entrepreneurial ecosystem.

Implementation process

Start-Up Chile was launched in 2010 by the government through its development agency, Corporación de Fomento de la Producción de Chile. The programme's operational model is designed to encourage entrepreneurs to establish their businesses by participating in an application process. Entrepreneurs have the opportunity to secure a six-month accelerator programme by submitting a comprehensive business plan after thorough evaluation and screening. The application process starts with entrepreneurs submitting a detailed application form that includes essential information such as the company's details, business model, market analysis and introduction of team members. Applicants are required to provide supplementary materials, such as a detailed business plan and company profile, to substantiate the feasibility and potential of their proposed business project. Following the submission, the application will be scrutinized by Start-Up Chile's evaluation team. The evaluation focuses on the project's innovative aspects, the viability of the business model, the capabilities of the startup team and the market potential, among other key factors. This rigorous evaluation and screening process ensures that only projects with significant potential and feasibility receive support and resources from Start-Up Chile.

1. Diversified and abundant entrepreneurial services effectively protect start-ups

After successful evaluation and screening, selected entrepreneurs are granted a six-month accelerator project by Start-Up Chile. During the project period, Start-Up Chile provides entrepreneurs with a full range of resource support including seed capital, a working environment and training courses. Each project receives approximately USD 100,000 in seed funding, which plays a crucial role in helping entrepreneurs overcome financial difficulties during the initial stages

of product development, market promotion and business expansion. Start-Up Chile provides access to free office spaces situated in the heart of the innovation and entrepreneurship ecosystem. This strategic location facilitates communication and collaboration among entrepreneurs, fostering invaluable interactions with other companies and mentors.

In addition to providing financial and venue support, Start-Up Chile also offers entrepreneurs access to a wide range of training courses. These courses cover various essential aspects such as business model design, marketing strategies and innovation management. The training sessions are conducted by industry experts and mentors, aimed at enhancing entrepreneurs' business acumen and management capabilities. Furthermore, during the accelerator project period, entrepreneurs have the opportunity to receive personalized counselling and guidance from mentors who are typically seasoned professionals in the field of venture capital. These mentors generously share their experiences and insights, and provide targeted advice and tailored guidance. Start-Up Chile also provides entrepreneurs with rich industrial networks and resources which enables entrepreneurs to connect and collaborate with other entrepreneurs, investors and industry experts, thereby expanding business cooperation and development opportunities.

2. Precise timing and unique location advantages play a key role

Good timing played a key role in the launch of Start-Up Chile. The accelerator project was established in 2010 amid the backdrop of the global financial crisis. During this period, economies in Europe and the United States of America were grappling with the challenges of a severe recession. Immigration policies posed significant obstacles for immigrant entrepreneurs who aspired to study and start businesses in the United States of America, and Chile seized on this opportunity by opening its borders and welcoming entrepreneurs from around the world. As highlighted in an article in *The Economist*: "Many countries have sought to create their own versions of Silicon Valley. Nearly all have failed. Yet Chile's attempt is interesting because it exploits the original Silicon Valley's weak spot – America's awful immigration system. When the home of free enterprise turns away entrepreneurs, Chile

welcomes them."

Chile is favoured by global investors for many reasons. It is located on the west coast of South America and borders the Pacific Ocean. With this geographical advantage, Chile has become a key trade hub connecting South America with Asia and North America. In order to remove trade barriers and attract international investment, Chile has signed free trade agreements with countries and organizations including the United States of America, China and the European Union. Chile also spans most of the latitudes of South America, boasting a diverse range of climates and ecosystems. These enrich Chile's crop varieties and quality, and make the country a popular destination for ecotourism meaning there are abundant investment opportunities in agriculture, tourism and ecologically sustainable development. Strong institutions and the rule of law have earned Chile a reputation for long-term political stability. Chile is known in Latin America for its transparent governance and low corruption rate: political stability reduces macro risks and increases its attractiveness for investment. Chile also has a well-developed infrastructure including modern ports, roads, airports and communication networks. In addition, the relatively developed education system contributes a high-quality workforce and attracts multinational businesses and investors to settle.

3. Good reputation continues to drive internal hematopoiesis

Through years of active publicity and promotion, Start-Up Chile has attracted outstanding entrepreneurs in information technology, biotechnology, green energy and other fields, see Figure 2.2. It has thrived in Chile and driven its innovation and entrepreneurship ecosystem, accelerating the implementation and development of more entrepreneurial projects. Since 2010, Start-Up Chile has witnessed several remarkable success stories of foreign companies. Two notable examples are Jumpseller from Portugal and Entrustet from the United States of America. Jumpseller is a cloud e-commerce solution company that assists small businesses in establishing online stores and selling products globally. The company's operations span across various countries including Portugal, Spain, Switzerland, Tajikistan and the United States of America, and several Latin American countries



Source: Government of Chile Ministry of Foreign Affairs. Programme Start-Up Chile. URL: <https://www.chile.gob.cl/chile/blog/suiza/berna/programa-start-up-chile>

Figure 2.2 Publicity poster from the early days of Start-Up Chile

such as Argentina, Brazil, Chile, Colombia and Mexico. This is testament that the team successfully built lasting business relationships during the period of the accelerator project, beginning continuous investment in the region. Founded by Nathan Lustig in 2010 in Wisconsin, United States of America Entrustet is an online storage solution business that enables individuals to create and update encrypted lists for their digital assets such as online accounts or computer files. After discovering Start-Up Chile, Entrustet applied and was accepted into the programme in August 2010. Nathan Lustig cited the programme's equity-free capital investment approach and attractive benefits as the main motivating factors behind his decision to apply. Entrustet was successfully launched six months after completing the accelerator's planned project. It is particularly interesting that, through the support from the programme, the entrepreneurs established lasting connections with the Chilean startup ecosystem. This bond was so profound that Nathan Lustig eventually

returned to Chile and co-founded Magma Partners – a relatively rare fully private venture capital firm and a significant investor in Latin American startups. Magma Partners has also actively participated in several portfolios that emerged from Start-Up Chile.

Start-Up Chile has become a witness to a plethora of success stories. Many entrepreneurs who received support during the project period have made subsequent investments, thus contributing to the growth of the Chilean venture capital market. Additionally, several startup projects have been successfully commercialized and achieved success in international markets. These achievements not only elevate the reputation and recognition of the Chilean innovation and entrepreneurship ecosystem but also inspire more entrepreneurs and investors to actively participate in the programme.

Reference experiences

1. Emphasize international vision and open cooperation

By attracting entrepreneurs from every corner of the world to launch businesses, Start-Up Chile has effectively shattered traditional geographical boundaries. The initiative has introduced innovative ideas and experiences from different countries and regions to the Chilean innovation and entrepreneurship ecosystem. Our interconnected and globalized world, cross-country exchanges and collaborations play a pivotal role in promoting innovation and entrepreneurship. Start-Up Chile has harnessed the power of such exchanges by actively engaging with innovation and entrepreneurship ecosystems of other countries and regions. Through these interactions, Start-Up Chile has gained valuable insights from successful experiences and innovative models from around the world, thus providing local entrepreneurs with expanded development opportunities. Start-Up Chile also provides opportunities for foreign entrepreneurs to start businesses. This welcoming approach has drawn a significant number of outstanding entrepreneurs to the country, infusing the Chilean entrepreneurial ecosystem with new vitality and innovation potential.

Through international cooperation, Start-Up Chile not

only offers entrepreneurs access to a broader market but also extends the reach of its own international business programme. Numerous entrepreneurial projects that have received support through the programme have ventured into markets of other countries and regions during the project period, achieving cross-border operations and international growth. The success of these projects going global serves as a benchmark for the Chilean innovation and entrepreneurship ecosystem, and fosters a deeper understanding and expansion of international markets for Chilean entrepreneurs thus enhancing the international competitiveness of Chilean enterprises.

2. Continuous follow-up and evaluation of the whole process

During its years of operation, Start-Up Chile has been committed to continuous optimization. Through tracking and evaluation of projects, the programme gains valuable insights into the development of entrepreneurs and the outcomes of their ventures. This process helps in identifying any existing problems or weaknesses, allowing for timely adjustments and improvements to be made. For instance, regular entrepreneurs' exchange meetings are organized, providing participants from different projects with an opportunity to share their experiences and insights. These gatherings foster cooperation and communication while offering Start-Up Chile a platform to comprehend the needs and challenges faced by the new businesses. The ongoing pursuit of improvement and optimization serves to enhance the effectiveness and sustainability of projects, ultimately elevating the appeal and influence of the entire programme.

Start-Up Chile has prioritized listening to the opinions and suggestions of entrepreneurs. The programme encourages participants to provide feedback and propose advice for improvement, and offers valuable references for the optimization and development of projects. Through constant improvement and evaluation, Start-Up Chile continues to improve its

service quality and level, allowing the programme to deliver better support and services while propelling the continuous development of innovation and entrepreneurship.

3. Pay attention to entrepreneurial culture and ecological conservation

Entrepreneurial culture plays a pivotal role in fostering the growth of the innovation and entrepreneurship ecosystem. It serves as a driving force that ignites the passion and entrepreneurial spirit of individuals, consequently leading to the continuous emergence of groundbreaking innovations and business startups. Start-Up Chile has cultivated entrepreneurs' awareness by providing a wealth of training courses, mentoring and industry network resource support, equipping entrepreneurs with the necessary tools to respond effectively to market challenges and seize opportunities. In addition, Start-Up Chile publicizes the successful experiences and achievements of its entrepreneurs through various promotional initiatives. By showcasing these success stories, the programme plays a positive role in encouraging the popularization and implementation of entrepreneurship.

The cultivation of entrepreneurial culture is inseparable from the support of a conducive entrepreneurial ecological environment. Start-Up Chile creates a friendly development environment for innovation and business startups through the backing of government policies and resource allocation. The government's policies ensure a stable foundation for innovation and entrepreneurship projects, while its capital investment provides a robust source of funding for aspiring entrepreneurs. In addition, Start-Up Chile is also actively building an entrepreneurial ecosystem, establishing a collaborative network that brings together entrepreneurs, investors, mentors and experts offering entrepreneurs a wider range of resources and cooperation opportunities. The continuous improvement of the entrepreneurial ecological environment has laid a solid foundation for the vigorous development of innovation.

Bonn, Germany Diversified funding boosts the development of start-ups: High-Tech Gründerfonds

Case background¹

HTGF is a significant initiative jointly supported by the German Government and private investors to foster technology entrepreneurship. Founded in Bonn in 2005, HTGF stands as one of Europe's largest seed-phase venture capital funds, see Figure 2.3. As of June 2023, it manages a total of EUR 1.4 billion providing financing to more than 700 start-ups operating in industrial tech, digital tech, life sciences and chemicals sectors.



Source: High-Tech Gründerfonds. URL: <https://www.htgf.de/de/neuer-seedfonds-des-high-tech-gruenderfonds-uebertrifft-erwartungen/>

Figure 2.3 Headquarters of High-Tech Gründerfonds, Bonn

The establishment of HTGF is closely tied to Germany's technology innovation ecosystem and economic policies. Germany has earned a distinguished reputation for its prowess in innovation and technological research. In the aftermath of two world wars, Germany swiftly recovered and established itself as one of the world's leading hubs for technological innovation. Compared to other countries, however, Germany has historically embraced a more conservative approach concerning venture capital and technology entrepreneurship. Early-stage hi-tech start-ups entail higher investment risks for investors, leading to a lack of financial support for numerous potential

young companies in their initial stages.

In 2005, HTGF was established through a collaboration among various public and private sectors which included the Federal Ministry for Economics and Technology, the Federal Ministry of Education and Research and the Association of German Banks. The primary objective of this partnership was to offer early-stage funding support for tech start-ups and establish a more robust financing and entrepreneurial support system within the technology innovation ecosystem. HTGF's establishment was driven by three main goals: to provide support for early-stage high-tech start-up projects and assist them in achieving success through commercialization and market entry; to expedite technology innovation and the conversion of outstanding research outcomes into viable commercial products and services; and to enhance the vibrancy of the technology innovation ecosystem in Germany by attracting more innovative talents and investors.

Against the backdrop of the era, Germany confronted a series of economic and social challenges. First of all, the rapid advancement of globalization and information technology highlighted the importance of technology innovation as a crucial driver for economic growth. To sustain competitiveness in the global arena and achieve economic diversification, the German government aimed to foster and support domestic high-tech start-ups. Secondly, Germany grappled with the issues of an aging population and insufficient employment opportunities. Recognizing that entrepreneurial endeavours could generate new job prospects and propel economic development, the government acknowledged that the inherent risks and uncertainties in the entrepreneurial process deterred many individuals from starting their ventures. Therefore, the government sought to encourage greater participation in entrepreneurship by establishing venture capital funds, providing early-stage financial support and professional expertise to help start-ups overcome initial obstacles.

Germany faced challenges associated with technological innovation. Despite its formidable

¹ High-Tech Gründerfonds. URL: <https://www.htgf.de/en/>.

strengths in scientific research and technological development, converting research outcomes into commercialized products and services presented certain difficulties. Start-ups played a critical role in this conversion process, however, they often encountered challenges such as inadequate funding, validation of business models and market promotion. Hence, the government sought to give support through venture capital funds like HTGF to foster the commercialization of research outcomes and facilitate the application and dissemination of technological innovations.

The objective of establishing HTGF is to address the aforementioned issues and promote the development of Germany's entrepreneurial ecosystem. By providing early-stage financial support, the fund bridges the gap for start-ups in their initial phases. This assistance boosts the confidence and motivation of entrepreneurs, encouraging more individuals to engage in business activities and reducing the risks associated with start-ups. Offering funding to start-ups allows HTGF to support them in product development, market validation and commercialization processes, thus accelerating their growth and achieving business success. HTGF also provides professional knowledge and guidance to help start-ups overcome challenges related to business models, market promotion and internationalization. Entrepreneurs often lack experience and industry insights, but with the support of its partner network and experts, HTGF provides strategic guidance, business development support and operational management assistance. This aid assists them in formulating and implementing effective business strategies. Additionally, HTGF works together with government departments and enterprises to provide broader resource support. Government involvement offers policy support and a source of funding for HTGF, enhancing the fund's operational effectiveness. Collaborative partnerships with German companies enable HTGF to access industry-specific expertise and market insights, facilitating better adaptation to market demands and competitive environments.

HTGF aims to facilitate entrepreneurial activities in the high-tech and innovation sectors in Germany by addressing challenges in funding, expertise and

resources. It endeavours to attract more entrepreneurs and promote the development of technological innovation and applications. By supporting the growth of start-ups, HTGF plays a significant role in driving economic growth, job creation and social prosperity.

Implementation process

The primary objective of HTGF is to invest in early-stage hi-tech start-ups and facilitate their rapid growth, thereby significantly contributing to the further advancement of Germany's technology innovation ecosystem. HTGF provides seed funding during the initial phases of start-up development, assisting entrepreneurs in overcoming financial constraints and driving the market realization of their creative ideas and innovations. HTGF focuses its investments primarily on the following areas: (1) information and communication technology, including technological innovations in areas such as the internet, software and mobile communications; (2) media, including innovations in digital media, game development, advertising technologies and related fields; (3) engineering and materials science, covering technological advancements in engineering, materials science and the manufacturing industry; and (4) life sciences, including innovation in biotechnology, medical devices, bioinformatics and other areas.

1. A process of rigorous pre-investment review and mature post-investment support

HTGF is an active venture capital fund driven by a well-defined set of steps and processes meticulously designed to ensure effective support for hi-tech start-ups. During the investment process, its operational workflow primarily consists of the following key steps:

(1) Application phase: high-tech start-ups seeking support can submit project applications to HTGF. These applications undergo rigorous review and screening, aiming to identify projects with the highest potential and strong alignment with HTGF's investment criteria.

(2) Due diligence: HTGF's investment team will conduct comprehensive due diligence on the projects that have successfully passed the initial screening. This involves a meticulous evaluation of various project facets, including the business model, technological

innovations, market prospects and other critical parameters.

(3) Investment decision: following the completion of the due diligence, HTGF's investment committee will deliberate and make the investment resolution to determine whether to provide seed funding support for the project.

HTGF also implements a series of well-established operational mechanisms for post-investment support. Once HTGF invests in a project, it provides proactive assistance to entrepreneurs in enabling the company to achieve rapid growth and market expansion. This support encompasses the following:

(1) Strategic guidance: HTGF's investment team collaborates with entrepreneurs to jointly formulate the company's strategic development plans and objectives, offering valuable insights and advice on commercialization strategies.

(2) Business networking: HTGF facilitates connections between start-ups and industry experts, partners and other investors to expand their business networks, see Figure 2.4.

(3) Financing support: HTGF may continue to participate in subsequent funding rounds, facilitating the introduction of additional investments to bolster the company's growth trajectory.



Source: Grune-Startups.de. URL: <https://gruene-start-ups.de/htgf-family-day-2018/>

Figure 2.4 Annual networking event (family day) organized by High-Tech Gründerfonds

2. Diversified investment partner portfolio and perfect long-term profit mechanism

HTGF had an initial investment of approximately EUR 300 million in 2005, primarily sourced from the Federal Ministry for Economics and Technology (BMW_i), the Federal Ministry of Education and Research (BMBF) and the Association of German Banks (BdB). The BMW_i, a pivotal partner of HTGF, is a public department responsible for economic policy and industrial development. It extends financial support to HTGF, thereby promoting the development of technology entrepreneurship and innovation within the country. BMBF is responsible for formulating and driving education and research policies. It collaborates closely with HTGF, providing funds to support early-stage tech start-up initiatives and facilitate the transformation of technological research achievements. BdB is an industry organization representing the interests of the German banking sector. As a strategic partner of HTGF, BdB offers funding support from the private sector to help push forward the growth of the hi-tech start-up ecosystem. With the elapse of time, the increase of additional investments has made a great contribution to the expansion of HTGF in its scale. By 2023, it has successfully launched four funds, accumulating a total capital of over EUR 1.4 billion.

HTGF primarily focuses on nurturing young, tech-driven start-ups and extends investments across diverse sectors including information and communication technology, media, engineering and materials science, as well as life sciences. To date, HTGF has provided financing to hundreds of high-tech start-ups ranging from innovative tech-driven ventures to emerging companies with high-risk and high-return potential. The success stories stand as a testament to the remarkable growth and achievements made possible by the funding support. For instance, in the field of ICT, HTGF's financing has propelled companies like Delivery Hero and FlixBus to attain tremendous success in the international market. These exceptional cases vividly exemplify the pivotal role that HTGF plays within the hi-tech start-up ecosystem by providing invaluable support and funding.

A prominent and remarkable success story financed by HTGF is CureVac, a German biotechnology company. Founded in 2000 and headquartered in

Tübingen, Baden-Württemberg CureVac is a leading biopharmaceutical company specializing in ribonucleic acid (RNA) technology. In its early stages, CureVac encountered typical challenges, necessitating substantial funding for research and development. Securing financial support from traditional investors posed a significant challenge for the startup, however, CureVac successfully obtained financing from HTGF. In 2005, HTGF invested in CureVac, providing invaluable seed investment that propelled its research projects and facilitated the transformation of technological innovations into marketable solutions. With the support of HTGF, CureVac achieved notable scientific breakthroughs particularly in the field of vaccine development. The significant progress made by CureVac garnered widespread recognition in the global capital market, culminating in its successful listing on the NASDAQ exchange in 2020 as the first-ever publicly traded messenger RNA technology company. This milestone further bolstered CureVac's financial resources, positioning the company for even more substantial growth in the future.

In summary, HTGF's profound impact on the hi-tech start-up ecosystem extends beyond the number and scale of companies it directly invests in. HTGF serves as a catalyst, propelling the overall development of the technology innovation. Through its provision of funding and support to young hi-tech start-ups, HTGF actively fosters the growth and commercialization of innovation. This pivotal role facilitates the transformation of scientific research into market-ready solutions, bolstering Germany's technological innovation capabilities and serving as a vital driver for economic growth and job creation.

Reference experiences

1. Government's resolute support and well-established collaboration mechanisms

HTGF is a venture capital fund established through collaboration among various public and private sectors including BMW_i, BMBF and BdB. As one of the primary funding providers, the government offers stable financial resources and endorsement to HTGF, enabling it to play a proactive role in supporting the early-stage technology entrepreneurship sector. The

successful operation of HTGF relies on the critical partnership between the public and private sectors. The government provides financial support and policy assistance to address funding challenges faced by start-ups and promote the conversion of technological innovation. Concurrently, the involvement of the private sector enables HTGF to attract more professional investors and business partners, expanding its influence and resources network, and accelerating the growth of hi-tech start-ups.

2. Diversified investment sectors and strong emphasis on innovative technologies

HTGF has adopted a strategic approach to its investments, encompassing multiple sectors including ICT, media, engineering, materials science and life sciences. This diversified investment strategy enables HTGF to identify and seize opportunities in various innovative technologies, extending crucial support to hi-tech start-ups across different industries. HTGF places particular emphasis on investing in groundbreaking technologies such as gene editing, artificial intelligence and biotechnology, recognizing their potential to initiate disruptive transformations and create new business prospects with significant growth opportunities. Through these strategic investments, HTGF injects fresh dynamism into Germany's technology innovation ecosystem, fostering the conversion of scientific research and development outcomes into market reality.

3. Positive post-investment support and global cooperation

Upon successful investment, HTGF offers proactive support and strategic guidance to entrepreneurs as well as financial support. HTGF's investment team works closely with entrepreneurs, collaboratively developing company strategies and objectives to help navigate operational and growth challenges. In addition through global cooperation, HTGF accelerates the international expansion of hi-tech start-ups. By fostering collaborations with international institutions and partners, HTGF creates opportunities for the supported companies to access broader business

networks and expand their market presence on a global scale. This international collaboration opens up greater growth prospects and global influence for German start-ups.

4. Leading impact of successful cases

HTGF has invested in numerous successful hi-tech start-ups, each of which has experienced remarkable development and achievements with the support of HTGF. These success stories serve as compelling evidence of the soundness and effectiveness of HTGF's investment strategy, attracting an ever-growing number of innovative enterprises and investors seeking partnerships with HTGF. The accomplishments of these flourishing start-ups have ignited a surge in capital inflows into HTGF, bolstering its financial resources and expanding its investment reach. The impressive track record of successful outcomes has also instilled newfound confidence in both the public and private sectors, resulting in strengthened cooperative mechanisms and enhanced resource support.

Amsterdam, the Kingdom of the Netherlands Integrating the "City Doughnut" model to scale the circular economy

Case background

Transitioning to circular economies¹ is recognized as one of the largest challenges in societies globally. As the most intensive areas of economic activity, consumption and production, transforming cities is one of the biggest leverage points in moving towards circular economies. Cities consume two thirds of global energy and 75 percent of global resources are responsible for 70 percent of CO₂ emissions, yet they only cover only 3 percent of the globe². Issues of overconsumption and the finite supply of resources requires cities to generate new innovative solutions in resource use, material flows and waste management along with new approaches to business development. Pioneering the way in circular economy development,

1 The circular economy is a model of production and consumption which revolves around sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible, thus extending the life cycle of products.

2 Metabolic. Circular Buiksloterham. URL: <https://www.metabolic.nl/projects/circular-buiksloterham/>.

Amsterdam is working to achieve this ambitious goal. In the early 2010s, a multitude of initiatives launched in the city enabled consumers to share underused resources or services between local people. Companies such as Peerby (offering goods to rent from neighbours), SnappCar (offering car sharing services) and Thuisafgehaald (offering cooking for neighbours) were early players in the space. This activity was met with wide interest from the Dutch media, with a focus on the potential social and environmental benefits of such platforms and new economic models. Commercial platforms including Uber, UberPop and Airbnb soon followed thereafter. Following the launch of the Sharing Economy Action Plan in 2014, Amsterdam was declared as the first “Sharing City” in Europe by the sharing economy network ShareNL in 2015 due to its large share of successful sharing-based businesses. Between 2016–2018, 70 projects executed by companies, research organizations and the municipality itself were launched, and subsequent project evaluation highlighted the potential for large-scale circular economy development¹.

With the arrival of new sharing-based companies, the negative impact of their activity emerged as a significant topic of debate among universities, policy institutes and national research centres. Amsterdam was pressed to address several related consequences such as a decrease in long-term rental and the emergence of unregulated activity such as illegal hotels. However, the city was also aware of the potential opportunities such as increasing business innovation, the reduction of municipal and structural waste, and increased efficiency in the use of goods as well as the growth in community networks that can arise from sharing economy activities. With growing momentum, the municipal government sought to find constructive responses to these challenges and opportunities. Operating in conjunction with the city's circular economy activities, The College of Mayor and Alderpersons' municipal executive board delegated a small team formed from the Economic Affairs and Innovation Office to create a sharing economy vision and action plan to guide development.

Through the Amsterdam Circular Strategy 2020–2025, the city is working to advance a sharing economy model to generate new business opportunities and social benefits. The Sharing Economy Action Plan lays out five core pillars including: (1) a focus on supporting pilot projects; (2) leading by example; (3) extending the sharing economy to all Amsterdam residents; (4) developing rules and regulations; and (5) establishing a sharing city. The action plan aims to generate a new market which has freedom to: innovate and grow; increase access to and the use of resources for residents, visitors and businesses; and mitigate any exogenous risks or shocks, thus promoting the transition to a circular economy.

Implementation process

With an ambition to operate as a regenerative and inclusive city whilst respecting planetary boundaries, the Amsterdam Circular 2020–2025 Strategy and the related Circular Economy Innovation and Implementation Programme 2020–2021 (I&IP) were adopted in May 2020 by the municipal executive and city council. Emerging from the midst of the COVID-19 pandemic, the strategy was launched with a preliminary two-year action plan, setting out the first steps of the pathway to become a 100 percent circular city, climate neutral by 2050 and to reduce the city's primary resources use by 50 percent by 2030. At its core, it aims to improve solutions to manage scarce raw materials, improve the efficiency of production and consumption and generate new jobs for all. Three core sectors targeted under this plan include: (1) food and organic waste streams; (2) consumer goods, and (3) the built environment, yet the strategy also recognizes the importance of incorporating activities that relate to all three chains and has thus adopted a cross value chain approach.

1. A development strategy that combines long-term and short-term goals to meet the needs of the times

Split into two distinct phases, phase one was initiated in April 2020 and involved the development of a “City Doughnut” in cooperation with: economist Kate

¹ Circle Economy, (2018). Amsterdam Circular: evaluation and action perspectives. URL: <https://publish.circle-economy.com/amsterdam-circular-journey>.

Raworth; Circle Economy, a consultancy firm; and C40 Cities, a network of cities globally combining climate and social action. As a transformative tool and framework within which to operate, the “Doughnut Economy” provides Amsterdam with a strategy to realize its vision: a balanced and holistic model promoting business innovation and business contribution to economic development whilst minimizing environmental and social impacts. The Doughnut economics-driven tool provides a base point for holistic approaches to inform policy development and supports the implementation of the city-wide circular strategy. Subsequently, in phase two, Amsterdam collaborated with internal directorates and market operators to generate a five-year circular strategy. The strategy contains a range of directions for action that have been tested against the Doughnut model within the value chains of food and organic residual flows, consumer goods and the built environment, as shown in Figure 2.5. As the core streams to work within, these three value chains

were chosen due to their economic contribution to the city, environmental impact and their alignment to the national government-wide programme A Circular Economy in the Netherlands by 2050.

The Amsterdam City Doughnut also forms the basis for the Monitor for the Circular Economy. Whereas the City Doughnut provides a snapshot, the Monitor provides continuous insight into both the social foundations and the ecological ceiling of Amsterdam’s economic development. As an innovative new tool, “circular scan” provides insight into the circularity of products and services as well as the economic potential of a circular revenue model. The tool encourages Amsterdam’s manufacturing companies to increase their sustainability and makes clear to small and medium enterprises the areas with potential for improvement. In this regard, it provides unique information into the way choices in relation to material use, transport and manufacturing processes impact primary raw materials and the climate, promoting circular entrepreneurship.



Source: C40 Knowledge Hub. Amsterdam’s City Doughnut as a tool for meeting circular ambitions. URL: https://www.c40knowledgehub.org/s/article/Amsterdam-s-City-Doughnut-as-a-tool-for-meeting-circular-ambitions-following-COVID-19?language=en_US

Figure 2.5 Conceptual diagram of the Doughnut model. The inner ring represents social foundations and the outer ring represents the planet’s ecological limitations. If a societal element falls short of meeting basic needs, it falls into the hole in the middle whilst any overshoots fall off the outer edge

Complementing the circular strategy, the I&IP provided a practical interpretation to assist its implementation focusing on over 200 projects that represented the city's first step in achieving its circular economy goals. As a key measure, it allowed Amsterdam to learn from actions, enabling adjustments and flexibility in implementation. More than 220 projects, interventions and ideas collected from and submitted by departments and partners for I&IP were classified according to the aims and relative directions for action for each individual value chain¹. The programme generated knowledge and experience to inform the development of preconditions for building a circular economy and scaling effective measures, advancing long-term systemic transformation.

Through a concerted effort to promote circular employment across all sectors of Amsterdam's economy, the city has seen an emergence of circular jobs over the last decade. From 2010–2021, the number of circular jobs in Amsterdam grew from 30,000 to around 46,400 with the share of jobs compared to total employment increasing from approximately 5.7 percent to 6.5 percent². Figures show that whilst circular employment growth remains relatively slow, there is a steady upward trend, particularly through rental and lease business activities which remain key where they ensure that the use of materials is radically considered. The city has also made targeted efforts to support and enhance businesses, unlocking new opportunities in the areas of circular entrepreneurship. In particular, measures to reduce the ecological footprints of businesses, improve their economics, stimulate new collaborations, and exchange materials and knowledge have been carried out. Businesses are encouraged to collaborate both vertically across chains and horizontally across sectors whereby a number of cross-value chain projects have run across sectors in which the transition to a circular economy has been undertaken in collaboration with local partners and companies.

2. Focus on core areas and achieve goals through a cross-value chain approach

As part of the cross-value chain approach to circular economy development, Amsterdam has focused on "social institutions and business" and "port industry" sectors. Where a number of organizations within these sectors are actively transitioning to circular models, the city has supported them in the scaling-up process and has worked to encourage those organizations that are less concerned with the circular economy to work towards the transition. Within the approach of social institutions and business, the first pillar focuses largely on the sectors providing social benefits notably museums, schools, universities and hospitals. These sectors are key given their direct impact on the use of primary raw materials and on resident's daily lives, and therefore more closely involve local people in the circular economy. Following this, the second pillar focuses on the corporate market, the driving force behind Amsterdam's economy, comprised of non-industrial companies and predominantly concerns small and medium-sized enterprises and large businesses. Notable businesses here include those in the hotel and restaurant sector as well as retail and services. The shared commercial purpose of such businesses provides employment and business activity and makes up a key sector for circular economy transition. With vibrant activity across hotel and catering industries, the Circular Hotel Frontrunner Group was launched in 2017, a network of 22 leading hotels that work with the city and their suppliers to deduce measures to minimize excess material consumption and food waste.

Within the industry sector, the Port of Amsterdam is a vital component in the city's economy, the metropolitan region of Amsterdam as well as the country and Europe. As a logistics hub, industrial hotspot and key service provider to the city, it plays a significant role in driving economic growth both locally and regionally. The port has been a focus of the circular transition with

1 City of Amsterdam, (2021). Circular Economy Programme: Lessons and Recommendations 2020–2021. URL: file:///Users/triggerfish/Downloads/circular_economy_lessons_and_recommendations_2020-2021.pdf.

2 City of Amsterdam, (2022). Circular employment in Amsterdam. URL: <https://onderzoek.amsterdam.nl/publicatie/circulaire-werkgelegenheid-amsterdam>.

the potential to become a circular ecosystem in which businesses can use one another's waste streams, and a location in which circular innovation can excel on an industrial scale. The port offers companies the chance to connect with initiatives that extract waste and promote innovation in the water cycle sector, fostering sustainable cooperation. The port also provides start-ups and scale ups with the opportunity to connect with other circular and biobased initiatives and industries via crossovers. It is also developing one of the largest biorefinery clusters in Europe, and is home to a number of innovative, specialized chemical plants that are forming a new generation in the sector in which factories are offering start-ups and scale ups the option of co-sitting and collaboration. With unique R&D and innovation infrastructure, the port therefore allows ultramodern circular economy companies the opportunity to grow and flourish. Capitalizing upon this ecosystem makes it possible to adopt a chain-oriented approach on a large scale, focusing on production and processing, and therefore making the port the optimal area to realize this ecosystem where the city has actively sought cooperation.

Within the core streams of the circular strategy, action within the food and organic waste sector has been undertaken where Amsterdam has sought to shorten food chains to provide more robust, sustainable food systems simultaneously, thus enabling businesses to buy and sell from local initiatives and better rotate their range of products. To enhance the sustainability of consumer goods, Amsterdam has focused on developing circular procurement policy and more efficient infrastructure to promote the sharing, repair, reuse and reprocessing of end-of-life products integrating a cluster of businesses, public authorities and knowledge institutions centred around turning waste to new materials. Working closely with retailers, the city is committed to increasing efficiency within the end-of-life phase of products, establishing responsibility agreements, cooperating with knowledge institutions and developing improved designs to more easily reuse products – focusing particularly

on the upcycling of textiles, electronics and furniture used and sold locally. As a community of more than 150 manufacturing companies across the city's metropolitan area, "Amsterdam Made" is developing solutions for a range of sustainability challenges via business collaborations, supporting and minimizing the use of raw materials and examining pathways to scale to a 100 percent circular industry. Aiming to stimulate growth and sustainability of the local manufacturing industry, the community generates sustainable products from the region with companies receiving the quality mark through values of creativity, craftsmanship and sustainability.

3. Regional and heterogeneous development strategies based on local industrial characteristics

Where the Amsterdam Metropolitan Area serves as a magnet for businesses and initiatives in the clothing industry, it is home to approximately 25 percent of the Dutch textile industry with associated companies providing some 10,000 direct jobs and 10,000 indirect jobs¹. However, where 36 million kilos of textiles are discarded annually within the region, two-thirds of this ends up as residual waste¹. To counteract this, ambitions have sought to promote the city as a hub in the Dutch Circular Textile Valley. Through this initiative, knowledge on sustainable and social textile manufacturing has been actively exchanged with other textile regions globally, advancing the development of a worldwide ecosystem for circular textiles. As a consequence, the city concluded the Denim Deal in 2021, a collaboration with jeans brands, central governments, textile sorters, recyclers and international producers in which participants made a joint commitment to producing three million pairs of jeans with a fibre content of at least 20 percent obtained from clothing discarded by consumers. In addition, participants have been working to establish a new industry standard of at least 5 percent reused fibre content in all denim products², increasing sustainability within the sector. In 2023, Green Deal Circular Textiles, a consortium of companies, governments and knowledge institutions that have signed intentions

1 Amsterdam Economic Board. Green Deal Circular Textiles. URL: <https://amsterdameconomicboard.com/en/initiative/green-deal-circular-textiles/>.

2 City of Amsterdam,(2021).Circular Economy Programme: Lessons and Recommendations 2020–2021.URL: file:///Users/triggerfish/Downloads/circular_economy_lessons_and_recommendations_2020-2021.pdf.

for the circular transition, have pushed for innovative means to close the chain, focusing on the use of circular aesthetics to inspire others, scaling up high-quality recycling in 2023.

To stimulate the reuse of products and materials, Amsterdam is cooperating with recycling shops and repair workshops. Schemes granting recycling shops payment for collected and reused second-hand goods was initiated, and the city became an official partner of the Repair Café Foundation. A pilot was also launched at waste collection points in which reusable wood is restored through recycling shops. In 2021, the Stadspas, a discount card for those on a low income, began a collaboration with 35 tailors in the city of Amsterdam and Weesp whereby cardholders receive 40 percent discount, and it continues to operate with success. To address issues of commercial waste, Amsterdam worked on creating more efficient and sustainable waste collection from businesses in 2021. The city took control of the De Negen Straatjes waste collection point in the shopping area reducing the number of local waste collectors by eight. Where it was found that roughly 50 percent fewer vehicles were needed for waste collection, the city supported two local business collectives to establish joint waste collection to promote cleaner streets.

In regard to the built environment value chain, the application of circular principles and criteria in the development of public spaces and buildings is encouraging new business activities. In turn, this is increasing the demand for new jobs and skills within the circular economy. By establishing a clear direction, Amsterdam provides market parties with the necessary time to adapt and develop new curricula or programmes for retaining or lifelong learning. The city is creating a standardized set of financial instruments to manage initial investments and risks, and make existing values explicit. This also takes into consideration the life cycle phases and residual value of municipal assets, property and land. In addition, the city has expanded both financial and commercial instruments to catalyse circular construction practices by owners, investors and managers.

Reference experiences

1. Understand the value of “learning by doing” in the transition to circular economies

As an incremental and new process, achieving circular economies across cities globally is a complex and far-reaching ambition. With many unknowns in how to proceed, there is as such no step-by-step plan that can be rolled out to become fully circular. Yet as a frontrunner city, Amsterdam is highlighting the value of implementing a “learning by doing” approach to advance efforts. Circular economy transformations highlight the need for greater knowledge and for sharing experiences, not only in regard to technological advisory but also on how to implement economic and financial incentives. The importance of working in collaboration is indicated internally within municipalities and via external parties, specifically through the triple helix of government, business and science. Via the application of solutions in practice at both the city and organization level, Amsterdam is gaining a greater knowledge and understanding of those aspects that are more effective in scaling the circular economy, as well as those that are less effective thus reinforcing the importance of learning by doing. The city’s efforts are promoting global visibility on circular economic transformations. Innovative measures such as the introduction of new business models shifting from products to services as well as the generation of new legal and financial instruments to advance circular economy roll-out have marked a new direction in the local economic development pathway and showcase the potential for cyclical urban economic models. The initiative has also emphasized the key role of leveraging departmental expertise and accountability in sharing economy practices, as well as raising profiles and sharing-based economy opportunities via mayoral and external endorsements. With significant progression in the transition, Amsterdam’s exploration showcases that in order to scale efforts moving forward, it is now important to progress from the notion of “learning by doing” to “learning by sharing” whereby cities and municipalities globally can explore new opportunities to advance progress within their respective development contexts.

2. Recognize the importance of circular economy models in balancing economic development with social and environmental integrity

Where the implementation of Amsterdam's Doughnut economic model seeks to apply a comprehensive and balanced approach to economic development, it also works to minimize detrimental environmental and social impacts. The nature of the initiative is that it aims to drive the local and regional economy with sustainability principles at its core, co-creating benefits across both social and environmental dimensions. Notably, the sharing platforms introduced in Amsterdam have promoted collaborative consumption, enabling improved access to resources and reducing social inequalities. Where the circular strategy prioritizes economic growth and job creation, it simultaneously works towards resource conservation via the minimization of resource extraction and waste generation. The initiative highlights the value of cities and municipalities around the world to identify their own circular models and apply them within their own context, creating a network of self-sustainable and holistic urban economies.

3. Leverage circular economy principles to stimulate innovation in business and industrial development

Amsterdam showcases the potential for the circular economy to initiate innovative business and industry development as well as job creation. The circular economy is challenging the city to rethink conventional linear models and instead focus on product and service design centred around principles of durability, reparability and reuse. Critically, it is pushing local businesses to identify new methods for material recovery and recycling, resource sharing, supply chain management, procurement and logistics as well as partnership and network development, thus stimulating business innovation. Aspects such as the concentrated focus on resource efficiency and value retention can help businesses tap into new markets and revenue streams to increase economic value. By embracing circular economy principles and focusing on the entire value chain, businesses can drive sustainable innovation and pronounce themselves in the market. In turn, this promotes the generation of new industry

and employment opportunities, fostering sustainable economic development and greater economic prosperity.

Sanming, China A carbon sink trading system that uplifts the ecological value of forests

Case background¹

Global climate change is currently one of the most pressing challenges facing the world as excessive emissions of greenhouse gases have caused abnormal fluctuations in the Earth's climate, an increase in extreme weather events and a threat to the ecological environment. As one of the most populous countries in the world, China also faces significant environmental pressure. In response to global climate change, China has been vigorously promoting the development of a carbon sink trading system and encouraging active participation in climate change mitigation efforts across the country. Sanming City in the north-west of Fujian Province, an important city in the south-eastern coastal region of China, boasts abundant forestry resources and fast-growing trees, and implements forestry carbon sink projects of great significance.

Over the past few decades, the sustained rise in global temperatures has been fuelling issues such as rising sea levels, glacier melting and the increase in the frequency of extreme weather events. Climate change has seriously affected the global ecological environment and economic and social development. Nations worldwide are actively pursuing measures to address climate change, among which a critical approach is the reduction of greenhouse gas emissions. With a high level of attention to climate change, the Chinese government has developed a range of carbon sink policies to tackle global climate challenges. As a crucial element, the carbon sink system aims to mitigate climate change by boosting forest carbon uptake volume through increasing forest area, and enhancing forest management and protection measures.

¹ With thanks to the official website of the Department of Natural Resources of Fujian Province for the valuable information it has provided.

Aware of the importance of utilizing the rich local forestry resources to implement carbon sink projects, Sanming municipality aims to promote climate change mitigation and enhance the quality of the ecological environment. In the early 21st century, the municipality decided to institute a forestry carbon sink system intended to increase carbon sink volume through the preservation and restoration of forest ecosystems, thereby contributing to global climate governance.

Sanming boasts a forest coverage rate of 78.73 percent and serves as a significant forest area in southern China, as well as a crucial timber processing base in Fujian Province. Over the past two decades, Sanming has been dedicated to the philosophy that “lucid waters and lush mountains are invaluable assets.” By advancing the reform of the forest tenure system and exploring and implementing systems such as forest certificates and forestry carbon sinks, Sanming has been able to realize the ecological value of its abundant forests and gradually connect the ecological value with economic value. As a result, ecological environment protection and economic development have progressed in a coordinated manner.

Sanming, as one of the pioneers of China's collective forest tenure system reform, has been continuously advancing ecological civilization construction. The total forest carbon sequestration in Sanming City is 340 million tons, with an annual carbon sequestration increment of around 11.7 million tons. Since initiating carbon neutrality practices in 2011, Sanming has taken the lead in establishing the first provincial-level carbon sink fund and forestry carbon neutrality fund, as well as founding the first carbon sink service organization in the province. Sanming has also completed the first carbon sink trading through Fujian Forest Certificated Emission Reduction (FFCER).

The vast number of farmers in Sanming also directly participate in carbon sink afforestation and share the benefits of green development. During the signing ceremony of the carbon neutrality demonstration forest at the 2021 International Bamboo Expo (Yongan) in December 2021, 82 acres of mountain land were afforested through forest certificate-based cooperation between Sanshe Village and Yongan State-owned Forest Farm. The carbon neutrality forest generated

a total of RMB 102,500 in carbon sink payments, of which Sanshe Village received RMB 41,000 based on a forest certificate ratio. The payment was shared among the village committee and cooperative members. Youxi County has built a carbon sink afforestation demonstration area of 34,200 acres. Through the Fujian Straits Equity Exchange Centre, carbon emission trading was completed with a trading value of RMB 1.4967 million. The resulting income was distributed to over 2,000 farmers who participated in the afforestation programme. The carbon sink trading system is therefore also making a positive contribution to improving the livelihoods of local farmers.

Implementation process

Since 2018, forestry carbon sink trading in Sanming has achieved a total trading amount of RMB 25.34 million, making it the top province in terms of both the trading volume and trading amount of forestry carbon sink products. From previously having abundant forest resources but with farmers having meagre incomes, to the current situation of “a healthy ecology contributes to a better quality of life”, Sanming has continuously improved its forestry carbon sink system by promoting pilot reforms and development in forestry which has driven the mutual promotion of ecological protection and development. The forestry carbon sink system in Sanming includes the following three aspects:

1. The reform of the collective forest tenure system is promoted to establish a well-defined system with clear property rights

From 2003 to 2005, Sanming completed the transfer and management of collective forest tenure, and promoted the issuance of forest tenure certificates and related reforms, thereby safeguarding the property rights and legitimate interests of citizens and farmers. Since the implementation of the unified real estate registration system, Sanming has promoted a series of forest tenure system reforms, including: (1) standardizing the registration of forest tenure-related real estate, establishing a forest tenure registry inspection and investigation team, adjusting and strengthening the natural resources staff in townships, and establishing a joint investigation and handling mechanism for forest tenure disputes; (2) establishing a forest tenure registration information

sharing platform, strengthening the connection between forest tenure registration and management, and further clarifying property rights; (3) exploring the “separation of the three rights” reform for forest tenure, clarifying forest land ownership, implementing farmer contracting rights, releasing forest land operating rights and becoming the first city in the country to issue certificates for forest land operating rights, granting rights to operators in areas such as forest tenure mortgage, receiving government subsidies and harvesting forest products; (4) developing systems for forest tenure transfer management, contract management, dispute resolution for contracting and operating, and forest tenure acquisition and storage in order to promote the transfer of forest land operating rights; (5) promoting diversified forestry operations, developing models such as large-scale operations, cooperative operations and shareholder operations, cultivating new types of operating entities such as family forests, shareholder forests and forestry professional cooperatives, and gradually forming a pattern of collective forest ownership, family contracting and diversified operations; and (6) promoting financial innovation in the forestry sector, innovatively launching universal forestry financial products such as forest tenure mortgages and expanding diversified investment and financing channels for forestry.

2. The reform of the “forest certificate” system is being promoted to stimulate the vitality of forest-agriculture and promote the development of large-scale and industrialized forestry

In 2019, to solve the problems of “fragmented” forest tenure, low survival rates and declining quality of afforestation due to a lack of technology and funding among forest farmers, Sanming formulated the Forest Certificate Management Measures and explored the pilot reform of the forest certificate system which is mainly based on “cooperative operation, quantified rights and interests, market trading and guaranteed dividends”. This pilot programme guides state-owned forestry enterprises and institutions to cooperate with village collectives or forest farmers on issuing forest certificates according to the equity shares held by the collectives or individuals, as determined by state-owned forestry enterprises and institutions, see Figure 2.6.

There are four modes of forest certificates: transfer of forest management rights, entrusted forest management, joint afforestation on felled land and equity participation in forest land. Among them, the transfer of forest management rights mode involves state-owned forestry enterprises purchasing a portion of the equity of existing forests owned by village collectives or forest farmers (after prior valuation), and the remaining equity is quantified into forest certificates. The entrusted forest management mode involves village collectives or forest farmers entrusting existing forests to state-owned forestry enterprises for operation and management, with the two parties agreeing on a distribution ratio and then quantifying the income into forest certificates. The joint afforestation mode involves investment in afforestation by both parties on harvested areas with the village collectives investing a portion and quantifying it into forest certificates. The equity participation in forest land mode involves village collectives participating in the equity of the operating rights of harvested areas, with state-owned forestry enterprises responsible for investment, both parties agreeing on a distribution ratio of profits from harvesting timber and the village collectives' income being quantified into forest certificates. As a certificate of equity returns, forest certificates can be held by village collectives or individuals until the end of the cooperation and the profits are distributed according to equity shares. They can also be realized through mortgage loans, market trading and transfers. Provincial state-owned forest farms provide a “guaranteed buyback” for the forest certificates they issue. If the forest certificate holder intends to withdraw from the cooperation, the forest farm will repurchase the forest certificates at the investment amount plus an annualized interest rate of 3 percent so as to control risks and protect the interests of forest farmers.

3. Sanming is exploring the trading of forestry carbon sink products and promoting the realization of the economic value of forestry carbon sinks

Since 2010, in accordance with international requirements, Sanming has been exploring the trading of forestry carbon sink products, mainly by improving the forest carbon sequestration capacity through artificial management. The verified and issued forestry carbon sink volume is then transformed into forestry

carbon sink products which are traded through the carbon emission rights or voluntary markets.

Conducting international Verified Carbon Standard (VCS) project trading is an important part of this effort. In 2016, Yong'an City in Sanming completed the registration of a VCS forestry carbon sink project with an area of 111,000 acres and a 20-year implementation period (2010–2029). In March 2021, the first monitoring period of the VCS project successfully traded 210,000 tons of carbon emission reductions, and the estimated emission reductions for the second to fourth monitoring periods totalled 785,000 tons. By engaging in FFCER trading and taking advantage of the national carbon emission trading pilot project, the province has included forestry carbon sink products as one of its targets in the carbon emission

trading market. The pilot project includes enterprises that are subject to carbon emission control. If their actual carbon emissions exceed the quota, they can purchase the remaining carbon emission quota from other controlled enterprises or use voluntarily verified reduction standards such as verified forestry carbon sink volume to offset their emissions.

Sanming is also making innovations towards realizing the value of forestry carbon sinks. In March 2021, Sanming explored the establishment of a forestry carbon certificate system. It uses "annual net carbon sequestration of forests" as the basis for measuring the carbon sequestration capacity of forests under the carbon neutrality target. Forestry carbon certificates (measured in tons of CO₂ equivalent) are issued for qualifying forestry carbon sink



Source: National Development and Reform Commission of the People's Republic of China. URL: https://www.ndrc.gov.cn/fggz/hjzy/stwmjs/202303/t20230324_1351749.html

Figure 2.6 Pilot areas for collective forest tenure system reform in Sanming

volumes, and holders have functions such as trading, pledging and redemption, see Figure 2.7. The system encourages large-scale events such as competitions and performances to prioritize the purchase of forestry carbon certificates to offset their carbon emissions. The city is developing forestry carbon sink collateralized loans and other green financial products based on the pledge of forestry carbon sequestration revenue rights, and using the expected income from carbon sequestration projects as the credit basis for loans so as to promote the realization of the value of forestry carbon sink products.



Source: Wenhui Network. URL: <https://wenhui.whb.cn/third/zaker/202306/12/525720.html>

Figure 2.7 Sample of a Sangming Forestry Carbon Certificate

Through the above measures, Sanming's forest tenure trading has developed vigorously. As of 2021, a total of 5,738 forest tenure transfers had been made with a trading volume of RMB 1.83 billion. Various types of operating entities are continuing to develop and the city has formed 3,019 forestry management organizations covering 62 percent of the area of collective commercial forests in the city, with an average operating scale of 3,458 acres per entity. A total of 193 villages in the city have carried out "forest certificate" practice and exploration, involving a forest land area of 124,000 acres, benefiting 14,400 households and 60,600 people. The income of a village collective can be increased by more than RMB 50,000 per year, thereby promoting the moderate-scale operation of forestry, and improving the supply capacity and value realization level of forest ecological products. The economic value of the forestry carbon sink has gradually emerged with a trading amount of RMB 19.12 million and the forestry carbon sink product trading

volume and amount both ranking first in the Fujian Province. Green finance has developed vigorously with a total of 16,000 forest tenure mortgage registrations in Sanming, at a mortgage amount of RMB 7.73 billion. The total amount of various types of forestry loans issued has reached RMB 17.225 billion, with a loan balance of RMB 2.76 billion, accounting for more than half of the province. In 2020, the total output value of forestry in the city was RMB 121.3 billion, making it the largest industrial cluster in Sanming. These measures have effectively revitalized dormant forestry resource assets, opened up a channel for the transformation of forest resource ecological value into economic benefits, promoted the formation of an interest-oriented mechanism of "the protector benefits and the user pays a principle", and achieved the organic unity of ecological beauty, industrial development and people's prosperity.

Reference experiences

1. Close integration of government guidance and social participation

The success of Sanming's forestry carbon sink system can be attributed to the guidance and policy support of the government. Local government has identified carbon sink projects as an important strategic priority for development. At the policy level, the government has formulated a series of policies to encourage and support carbon sequestration projects including financial support, tax incentives and preferential measures in land use rights. Government policy support has provided a strong guarantee for forestry carbon sink projects while also sending a clear signal for investors and enterprises, thus increasing the attractiveness and feasibility of carbon sink trading systems.

Sanming emphasizes diversified cooperation and social participation. During the project implementation process, the government, enterprises, research institutions and general public worked together to participate in the planning, implementation and monitoring of carbon sink projects. The government plays a leading and coordinating role in the project, guiding enterprises and research institutions to participate in technical support and management while fully harnessing the supervisory and participatory role of the public. The

involvement of the community has contributed to the increased transparency and accountability of the project, as well as fostering environmental awareness and participation, thereby creating a collaborative and inclusive environment that provides a solid foundation for successful implementation.

2. Organic combination of ecological protection and economic development

In contrast to the traditional view of environmental protection and economic development as being mutually exclusive, Sanming's carbon sink project has demonstrated that the two can be effectively combined and optimized.

The forestry carbon sink project has promoted the conservation and restoration of forest resources. Through its implementation, Sanming has gained a deeper understanding of the importance of the ecological environment. The government has increased its efforts to protect forest resources, strengthened forest fire prevention, nurturing, pest control and other management measures, and curbed excessive logging and environmental damage. In addition, the project has encouraged the participation of farmers in forestry management, promoting sustainable forest planting models, and improving the renewal and carbon uptake capacity of forest resources.

The forestry carbon sink project has also driven the transformation and development of the local economy. Through eco-tourism, green industries and other means, the project has created new economic growth points for Sanming. Many tourists are attracted to the area to see the pristine forests and participate in eco-experience activities, driving the prosperity of the tourism industry. In parallel, the forestry industry has been optimized and upgraded, shifting from simple timber harvesting to the processing of high-value-added products, thus increasing the income of farmers. This organic combination of ecological protection and economic development has not only maximized ecological benefits but also ensured the sustainable development of the local economy.

3. Importance of scientific monitoring and experience sharing

The forestry carbon sink project relies heavily on

technological innovation and data support as key factors for its success. Sanming has proactively employed modern technological approaches such as satellite remote sensing and geographic information systems to monitor and assess forest resources throughout the project's implementation. Through these technological approaches, the forest area, growth status and carbon uptake volume can be accurately measured, providing scientific evidence for the project. The accuracy and timeliness of the data have ensured the effective implementation and monitoring of the project, as well as providing data support for the project's long-term operation. Technological innovation has also driven the sustainable development of the forestry carbon sink project, bringing new opportunities and possibilities.

Scientific monitoring ensures the reliable assessment of the carbon sink volume. By utilizing advanced technological approaches, real-time data on the forest area, growth status and carbon storage capacity can be obtained. The accuracy and timeliness of this data provide the government and investors with scientific evidence, ensuring the reliable assessment of carbon sink volume. Data sharing has also facilitated collaboration and exchange. Sanming shares the monitoring data and research outcomes of the forestry carbon sink project in order to foster collaboration and knowledge exchange with scientific research institutions and other regions. The sharing of outcomes has not only facilitated the promotion and application of carbon sink technology, but also provided valuable experience and insights for other regions to carry out similar projects.

Quzhou, China Green financial carbon accounts promote sustainable urban development

Case background

Located at the junction of four provinces – Anhui, Fujian, Jiangxi and Zhejiang – Quzhou in the west of Zhejiang Province is a major ecological barrier. The beautiful natural scenery and superior ecological environment have awarded Quzhou as a National

Ecological Demonstration Area, a National Garden City, a National Forest City and a United Nations authenticated International Garden City. However, in this only prefecture-level city in Zhejiang Province dominated by the energy-intensive industries of chemicals, steel, papermaking and cement, the heavy chemical industry contributes more than 90 percent of total industrial carbon emissions and hinders sustainable urban development. Faced with unclear carbon assets, insufficient emission reduction motivation, operational difficulties in the “carbon peaking and carbon neutrality” (dual carbon) goals and imprecise allocation of financial resource factors, Quzhou is actively complying with the requirements of the SDGs and the Chinese government’s dual carbon goals, seeking to address these universal challenges.

As a pilot area for green financial reform and innovation, Quzhou has embarked on an important path to promote sustainable development through green financial reform. It started with the high-carbon industrial field, trying to empower green finance with carbon data and gradually establishing a green financial carbon account system covering seven major fields: agriculture, construction, energy, forestry carbon sinks, industry, residential life and transportation. After defining the boundaries of carbon emissions, low-carbon contributions, carbon reduction responsibilities and carbon emission rights of each social entity, Quzhou supports social entities in various fields with differentiated targeted financial policies based on local conditions and encourages joint efforts to promote green and low-carbon transformation. Against the backdrop of global economic downturn, Quzhou has revived the urban economy with optimized capital allocation, achieved common prosperity for multiple entities, and formed a systematic and replicable model.

Implementation process

As one of the first cities in China to pursue reform and innovation under the concept of green finance, Quzhou took the lead in launching a provincial reform pilot in 2014. From 2014 to 2016 in its initial exploration, Quzhou discovered shortcomings such as insufficient financial products, unclear standards and unsystematic policies. Since being selected into the National Green Finance Reform and Innovation Pilot Zone in 2017,

Quzhou has deeply explored the policy incentives, standard systems, product innovation, technology empowerment and other tools of green finance, establishing a carbon account financial system in 2020 in accordance with the requirements of the “dual carbon” goals. As of the end of 2022, a total of 2.1541 million carbon accounts of various types had been established across the seven major fields covering 100 percent and 93 percent of enterprises above designated size and individual residents respectively.

1. A carbon account financial ecosystem guided by a sound system

When exploring and building carbon account finance, Quzhou adheres to the dominant position of policies and standards, introduces targeted policies for financing, emission reduction and green development in the major fields and accelerates the construction of carbon account finance with four key measures.

(1) Quzhou has built a complete policy system for carbon account finance covering implementation plans, standard systems and legal regulations. Guided by the Guiding Opinions on the Implementation Plan for the Financial Construction of Quzhou’s Carbon Accounts and Implementation Plan for the Financial Construction of Quzhou’s Carbon Accounts, it has clarified the organization, leadership, funding guarantee and specific tasks for the construction of carbon accounts, and incorporated the carbon account system and its application into the Regulations on the Promotion of Quzhou as an International Garden City to turn the innovations into achievements in an institutional way.

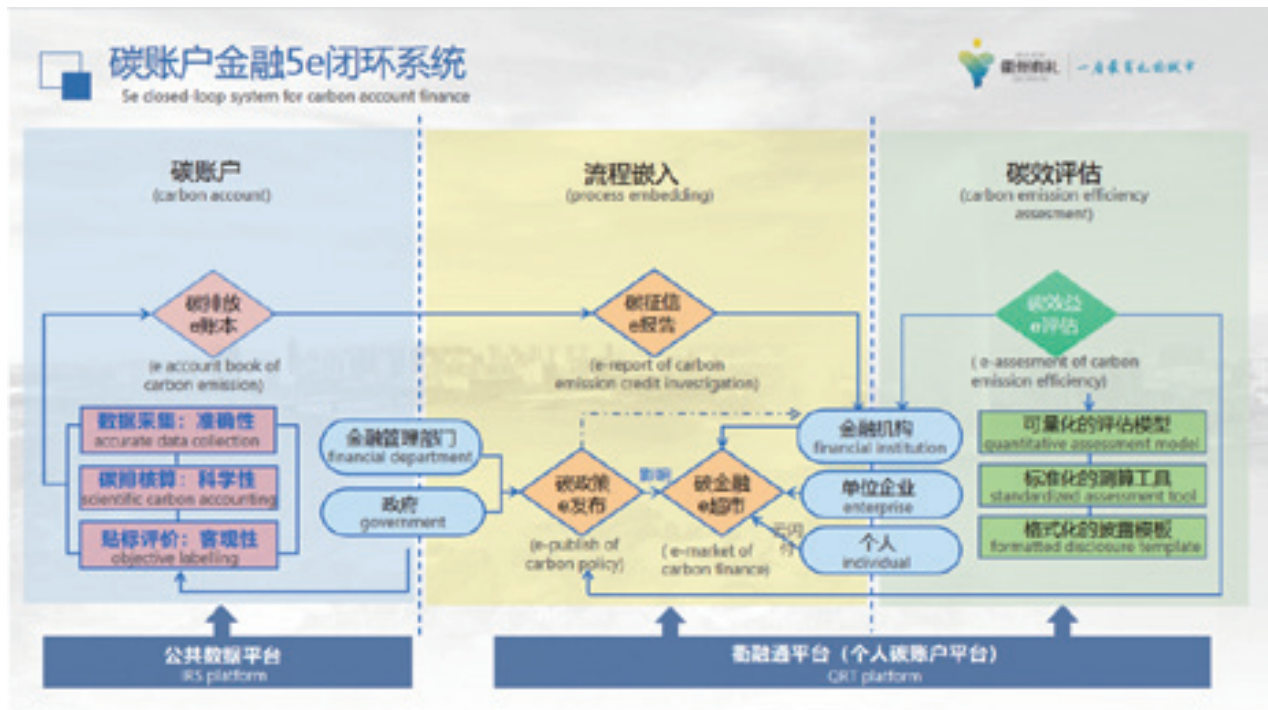
(2) Quzhou has conducted joint research with universities and scientific research institutions and published the Guidelines for Carbon Emission Accounting and Evaluation for various fields. It developed and established a digital carbon accounting method to compare the carbon emission intensity of companies with industrial benchmark values, and evaluate them through four-colour labels of “red, yellow, light green and dark green”.

(3) Quzhou has teamed up with government departments, banks and think tanks, etc. to draft and promulgate the Guiding Opinions on the Construction of a Financially Supported Carbon Account System and

established a carbon credit system. Based on enterprise labels, it provides differentiated credit and creates a virtuous cycle involving low-carbon enterprises, low-interest banks and government subsidies.

(4) Quzhou has established a “5e” digital intelligence system for carbon account finance based on carbon

accounts, embedded processes and a carbon efficiency assessment, as shown in Figure 2.8. By empowering carbon account financial services with digital management technology, a closed loop is formed from carbon emission records, to green financial services and then to the evaluation of the carbon reduction effect by loans.



Source: URL: <https://mp.weixin.qq.com/s/1rByq4skoMvZjfm0S91UA>

Figure 2.8 Financial system architecture of “5e” carbon account

2. Refined services and functions based on enterprise needs

Before the establishment of the carbon account financial system, the low-carbon transformation of local enterprises had reached a bottleneck. This system specifically solves the pain points that enterprises are most concerned about by combining carbon emission data with production indicators involving raw materials, energy consumption and efficiency. The resulting low-carbon benefits increase profits and stimulate the endogenous power of enterprises.

(1) Diversified green financial products accelerate the transformation of enterprises into green production. In response to the financing problems faced by enterprises in their green transformation, Quzhou has

developed green financial products such as “Industrial Carbon Reduction Loans” and “Carbon Financing”. Carbon credit reports and evaluation label grades lay the foundation for differentiated matching of credit policies and support the technological transformation of enterprises in energy conservation and carbon reduction. At the UNIWIN Group in Jiangshan, a low-carbon and smart building-based “Zero-Carbon Ranch” was planned. Through low-carbon feed, low-carbon farming, organic composting and waste gas treatment, it was expected to accelerate the group’s transformation to low-carbon intensive farming and save energy and reduce emissions throughout the entire process. However, the limited conventional financing scale of agricultural enterprises repeatedly hindered its development. After the launch of carbon

account financial products, UNIWIN Group was able to solve its financial dilemma by obtaining a credit line and a loan of CNY 20 million from “Carbon Financing” relying on its “dark green” carbon account label. Since beginning operation in 2022, the project has saved 90 percent of land resources compared with the traditional model, increased the breeding scale from 35,000 to 140,000, cut carbon emissions by at least 4,166.4 tons per year and increased the carbon neutrality rate from 6 to 12 percent, see Figure 2.9. As of the end of 2022, Quzhou has launched 70 carbon account financial products, issued CNY 41.8 billion in carbon account loans to enterprises and encouraged 223 enterprises to invest more than CNY 6 billion in their low-carbon-oriented transformation.



Source: UNIWIN Group Co. Ltd

Figure 2.9 UNIWIN group's digital low-carbon ranch

(2) The Energy Management Contract (EMC) model assists enterprises in refined energy consumption management. Facing the severe needs of managing enterprise production, Quzhou has been promoting the EMC model involving the government, enterprises and integrated energy service companies based on

corporate carbon accounts. In this model, integrated energy service companies provide one-stop energy saving and carbon reduction services, and share the resulting benefits with enterprises. For instance, Zhejiang Mingwang Dairy Co., Ltd. entrusted State Grid Quzhou Integrated Energy Branch to customize energy and carbon management systems, and energy-saving and carbon-reduction plans based on its carbon account. The service fee is paid in proportion to actual emission reduction benefits such as cost savings and green power trading. So far, Mingwang Dairy's average annual revenue share exceeds CNY 6 million, and the cost is expected to be recovered within seven years. Through sensors at emission nodes, the energy and carbon management system can instantly monitor and calculate carbon emission data, identify high energy consumption points and dynamically optimize management plans. Through comprehensive utilization of green electricity, off-peak power consumption, and other means, Mingwang Dairy manages production energy consumption in a refined manner. For example, by operating equipment in energy-intensive production lines during photovoltaic power generation, it increases the photovoltaic consumption rate and improves the overall energy efficiency of the factory by more than 10 percent. As of the end of 2022, the transformation has decreased Mingwang Dairy's energy costs by CNY 5 million, carbon emissions by 4,400 tons, and won it the reputation of a National Green Factory, see Figure 2.10. Currently, this transformation model has been extended to other production bases of Mingwang Dairy across the country.

(3) Carbon footprint monitoring strengthens the resilience of enterprises in international market competition. As carbon tariffs in international trade put great pressure on enterprises, it is necessary for enterprises to transform production models. Quzhou has upgraded its carbon account and footprint monitoring system based on enterprises' needs and supported them with a full-process “green electricity trading” service system to enhance their resilience in international competition. Zhejiang Jiansheng Group Jiangshan Knitting Co., Ltd. mainly provides services for R&D, design and manufacturing of cotton socks for international brands such as Adidas and Puma. Since 2018, international customers have clearly requested that clean energy products account for 20 percent.



Source: Zhejiang Mingwang Dairy Industry Co., Ltd

Figure 2.10 Energy and carbon management system for businesses

Due to insufficient capacity, the knitting company has to purchase clean energy at high cost to maintain international competitiveness. Starting in 2021, the company has customized a “green energy + energy efficiency” comprehensive energy service based on its carbon account, optimized production processes, built photovoltaic power stations and generated electricity for its own use, see Figure 2.11. Through the carbon footprint monitoring system, it screens low-carbon raw materials and reduces carbon from the upstream industrial chain, ensuring that 15 pairs of socks out of every 100 are produced with green energy. It relies on the carbon account to calculate data on carbon reduction based on technological transformation and the industrial carbon chain, and provides the data to global clients as an authoritative basis. In this way, it has removed carbon footprint barriers in international transactions, shaped a sustainable corporate image and broadened its customer base. This model has helped 100 similar export-oriented companies remove carbon barriers and cut third-party certification fees for carbon footprint accounting by an average of 20 percent.



Source: Zhejiang Mingwang Dairy Industry Co., Ltd

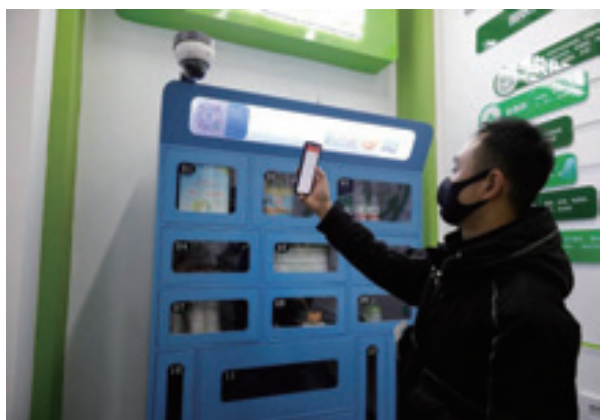
Figure 2.11 Rooftop photovoltaic power generation devices of the factory in Jiangshan Base of Zhejiang Jiansheng Group

3. Sustainable lifestyle transformation based on daily life

Quzhou focuses on the universal coverage of “green financial carbon accounts” and guides a green and low-carbon lifestyle through points redemption and

green credit point rating mechanisms. As of the end of 2022, the “personal carbon account” has attracted 152,000 active users, cut carbon emissions by 39,700 tons, and issued 96 million “carbon points” and CNY 112 million from preferential carbon loans.

(1) Establish an incentive mechanism for green lifestyle. Quzhou links individuals’ contribution to carbon emission reduction with their carbon account quota to encourage the public to save energy and reduce emissions. The amount of carbon saved by residents during low-carbon transportation, daily energy conservation and rubbish recycling is calculated as a personal carbon account and can be exchanged for carbon point rewards. In Kecheng District, Quzhou the household waste that residents sort and recycle as determined by the “Zero-waste Life” low-carbon campaign is classified, weighed, calculated and converted into personal carbon points. In the community’s “Common Wealth Mall”, residents can exchange their points for public transportation vouchers, agricultural and sideline products, daily necessities and housekeeping services, as shown in Figure 2.12. Social capital represented by Huge (Quzhou) Environmental Co., Ltd. was introduced to collect domestic waste at doorsteps and provide other services to stimulate residents’ enthusiasm for participation. As more residents actively participate in the recycling of household waste and green travel, green and low-carbon living habits have become popular. As of December 2021, the Zero-waste Life scenario in Kecheng District has matched 130,000



Source: Baiyun Subdistrict Office, Kecheng District

Figure 2.12 A community resident uses “carbon points” to redeem goods

active users, covering 61.86 percent of active users, recycling a total of 17,000 tons of domestic waste with a total carbon emission reduction of 20,300 tons.

(2) Establish a personal green credit mechanism. As carbon points are linked to green credit ratings, residents can earn carbon points through green lifestyles and enjoy differentiated preferential credit policies based on corresponding personal green credit ratings which broaden their financing channels for starting a business and improving life. For example, to obtain working capital, an agricultural machinery dealer in Qujiang District applied for a three-year personal credit loan of CNY 300,000. However, his personal credit line only allowed a loan of CNY 200,000 so he turned to green credit channels. With the 10,020 carbon points accumulated in his personal carbon account, he redeemed a CNY 300,000 yuan “Carbon into Gold” credit loan from Zhejiang Qujiang Rural Commercial Bank with a 50 percent increase in the credit line and enjoyed a 30 basis point reduction in the interest rate, reducing expenses by CNY 2,700 year-on-year over three years.

Reference experiences

Historically, Quzhou, located in the economically prosperous Jiangsu-Zhejiang region, has inherited the economic and cultural genes of “learning must be beneficial to state affairs” and “morality and interests are equally important”. These organically integrate ecological, economic and social concepts, and build a fulcrum for the government, enterprises and residents to jointly leverage the win-win situation of society, economy and environment through innovative green financial systems and mechanisms.

1. A scientific standard system lays the foundation for the efficient allocation of resources

After a long-term exploration of the innovative “green finance” model, Quzhou, on the basis of the gradually consolidated legal and policy system, realized that the efficient allocation of resources should be based on a scientific “carbon account” standard system. Through the model of “each research team is responsible for a standard field”, Quzhou has supported the R&D of unified collection, accounting and evaluation standards from the production end to the consumption

end targeting the seven major fields and building an intelligent monitoring and dynamic accounting system that records the carbon behaviour of various social entities. This has provided localized solutions to common global problems such as inaccurate carbon emission data and ineffective carbon reduction methods, which further contributes a scientific basis to the improvement of the evaluation and monitoring mechanism of green financial policies, as well as measures such as incentives and the reverse promotion of graded policy implementation.

2. A complete digital ecosystem ensures the efficient operation of the system

Based on a complete “5e” intelligent digital system, Quzhou has integrated functions such as data collection, report evaluation, policy release, financial product processing and benefit evaluation into green financial actions thereby improving the overall efficiency of the green financial system. Through the integration of the green financial system and the public government service digital platform “Zheliban”, the government-enterprise-bank financing platform “Qurongtong” and the residents’ community life management platform “Linlitong”, Quzhou has gradually built a green financial digital ecosystem covering all aspects. These convenient and practical measures and tools have enhanced the penetration of green finance policies, products and services, increased the frequency and efficiency of use in multiple entities and scenarios, and truly guaranteed the efficiency of optimizing resource allocation in the green financial system.

3. Accurate demand orientation is the key to motivating the participation of multiple entities

When promoting public policies and actions in the green and low-carbon field, most cities are hindered by the lack of motivation of residents and market entities to reduce carbon emissions as well as the limited entry points of local governments in the field of peak carbon and carbon neutrality. From the very beginning, Quzhou has fully encouraged participation under the guidance of the actual needs of multiple entities and continued to advance green financial actions. Diversified green financial products and accompanying digital management services for enterprises, residents and village collectives have brought tangible benefits

to multiple entities. The reduction of production and financing costs for enterprises has enhanced their market competitiveness. Residents are encouraged to recycle waste to earn credits that can be redeemed for real goods. Village collectives have activated natural resources and encouraged multiple entities to participate in green and low-carbon actions to the greatest extent, achieving common prosperity by integrating multiple resources.

4. Innovation at the local level should simultaneously focus on international trends to sustain change

Quzhou has contributed valuable experience to the global issue of green finance with innovative practices and provided a Chinese solution to the implementation of the 2030 SDGs. From the start of the exploration in 2014 to the comprehensive integration of the green financial carbon account system with the government, enterprises and residents’ administration, production, and life in 2023, Quzhou’s government departments, enterprises, universities, scientific research institutes, social organizations and the public have jointly promoted innovations oriented to a global vision while being based on local characteristics. During this period, Quzhou has consistently maintained the same frequency resonance with the standards and needs of the international community, actively shared its innovative achievements with city partners around the world, and shared its experience in the carbon emission disclosure of financial institutions and personal carbon accounts at the twenty-seventh Conference of the Parties to United Nations Framework Convention on Climate Change. Based on these achievements, Quzhou will continue to promote the international-local two-way link and iterative update of these practices in terms of standards, models, systems and tools.

Policy suggestions

1. Strengthen the cooperation between government and society, and build a diversified financial support system

When formulating policies, municipal governments should adhere to the mechanism of support and

cooperation, build a platform for multi-party participation and cultivate a close cooperation system with enterprises, scientific research institutions and the public. The active participation of governments can support start-ups that are short of funds through finance and policy, and accelerate the transformation of scientific and technological innovation. For example, the German government, as one of the main funding providers, has guaranteed a stable source of funding and endorsement for HTGF, helping it to play an active role in the field of early-stage technology entrepreneurship. Governments can also encourage the participation of the private sector to attract more professional investors and business partners for green finance projects, expand their influence and resource network, and accelerate the development and growth of technology start-ups.

2. Encourage innovation and entrepreneurship through a suitable entrepreneurial culture and innovation ecology

Municipal governments' encouragement of innovation and entrepreneurship education can be very helpful in cultivating innovation awareness and entrepreneurial spirit. For example, policy support and resource input provide entrepreneurs with rich training courses, mentoring, industry networks and other supporting resources, allowing them to better deal with market challenges and opportunities. In addition, the government can take the lead in building an entrepreneurial ecosystem and entrepreneurial network involving entrepreneurs, investors, mentors, experts, etc., and provide entrepreneurs with a wider range of resources and cooperation opportunities, just as they facilitate technological innovation and the application of green technologies by encouraging cooperation between enterprises and scientific research institutions. In the case of Germany's HTGF, the government cooperates with the private sector to support capital-strapped start-ups through funds and policies to accelerate the transformation of technological innovation. In turn, the participation of the private sector attracts more professional investors and business partners for HTGF, expands its influence and resource network, and accelerates the development and growth of technology start-ups. In the circular economy practice in Amsterdam, companies differentiate themselves in the market

through sustainable innovations, which leads to new industries and jobs.

3. Establish a scientific evaluation and monitoring system to ensure policy effectiveness

Municipal governments should establish a scientific evaluation and monitoring system in order to ensure that full play is given to policy effects in sustainable economic development. Governments can formulate relevant indicators and standards, and regularly evaluate financial programmes and policies in order to identify problems and improve them in a timely manner. For example, in its green financial action, Quzhou integrated the functions of data collection, report evaluation, policy release, financial product processing and benefit evaluation through the "5e" digital intelligence system which improved the efficiency of the green financial system as a whole. The government can also use digital technology to establish a complete system for collecting and analysing data, detecting the operation of green finance in real time and laying a scientific foundation for decision-making. Such a monitoring system will ensure that all information is open and transparent to government departments, enterprises and the public, thereby helping them to better understand the operation of related projects, detect abnormalities in time, and strengthen the implementation and effectiveness of the relevant policies.

4. Actively promote global cooperation to share and publicize successful experience

Municipal governments can actively participate in international cooperation to share experience with other countries and regions, and learn from more successful experience and innovative models. For example, Chile's entrepreneurial accelerator provides more opportunities and a broader market for local entrepreneurs by attracting global entrepreneurs, injecting new vitality and innovation power into Chile's entrepreneurial ecosystem. In addition, international cooperation at the government level is beneficial for local financial institutions to expand the international market and enhance the international competitiveness of local financial services. Recommendations are: to formulate and promote a successful financial management mechanism; popularize and apply a sustainable financial system on a global scale; and contribute to global sustainable development.

Chapter 3

Society: social capital and inclusive community development



Introduction¹

In the context of urban societies, financing and resource integration entails leveraging social financing, planning and policy mechanisms to enhance the quality and well-being of urban communities and their social fabric in line with the SDGs. Conceptually, finance in the social sphere is represented by social capital, which manifests as the ability to act based on the relationships formed through social networks, trust, reciprocity and other factors such as symbolic and cultural capital. Operationally, social finance refers to the aggregation and circulation of social capital. This raises the question of what shape social capital might take in urban areas, particularly within communities, and how social capital functions through circulation in real-life scenarios. Unlocking sustainable and inclusive finance mechanisms will play an integral role in delivering impact in urban communities. Urban social capital can integrate with local community economies, fostering new forms of community entrepreneurship, innovation and social integration. To illustrate these concepts and criteria, this chapter presents four case studies.

In Shanghai, China, the Shanghai Base for Charity Entrepreneurs is situated in the Shanghai Xin-tiandi of Charity and Voluntary Services Park, endorsed by the Civil Affairs Bureau and managed by the Social Organization Service Department of the Shanghai Municipal Bureau of Social Organizations. It is primarily operated by the Shanghai Songding Social Public Welfare Innovation Development Centre. Guided by the principles of innovation, openness and sharing, this pioneering model aims to explore “cross-sectoral collaboration” as a means to address major social issues. With the support of the park, innovative ideas and entrepreneurship in the public welfare sector are encouraged, which includes but is not limited to, temporary hosting of public welfare projects and activities in the park, the incubation and nurturing of social organizations and public welfare projects, and the provision of socialized support services for public welfare institutions. The case also includes the column “Meta Place in Shanghai: Digital Medals Aggregating Social Capital”. This unique column utilizes meta-universe tools, such as [comupage], to create non-fungible tokens (NFTs) digital medals that record and incentivize the involvement of community social organizations. By leveraging user-friendly and cost-effective meta-universe tools, community contributions are encapsulated into cross-platform and tamper-proof digital medals, empowering social capital to have a lasting impact from the grassroots level.

Secondly, the chapter showcases the Creative Community Programme in Colorado, United States of America. This case targets marginalized groups in the community development process, employing a systematic and diverse range of creative projects to activate social capital and create more development opportunities at the community level. The “Call Yourself Creative” programme, offered by Colorado Creative Industries (CCI), is a free programme open to anyone interested in developing and sustaining creative communities and regions. It aims to support Colorado's creative economy by utilizing practical tools and resources to promote the development of existing creative districts, foster emerging and new creative communities, and enrich the quality of life for residents while injecting vitality into society.

Thirdly, the case of the Bogota Care System showcases the transformation of the city's public services delivery model. By prioritizing access for female caregivers, the integration of Care Blocks has offered them dedicated social spaces to participate in empowerment activities including education and skills-building programmes. This project shows how Bogota is reorganizing the city for women and girls, increasing their access to opportunities and services reflecting a novel approach to city service delivery that is flexible and practical at the operational level, and which

¹ This chapter was written by the team led by Professor Yu Hai from Fudan University. The authors include Sun Zhe (Shanghai University of Finance and Economics), Zhong Xiaohua (Tongji University), Liu Zhen (UNESCO World Heritage Training and Research Institute for the Asia and the Pacific Region), Zhu Yi (NPO Development Center, Shanghai), and Zou Huahua (Shanghai University of Medicine & Health Science). The case of Bogota and the case of Beirut were provided by UN-Habitat.

contributes to a long-term supportive policy framework on equitable urban and community development.

The last case presents the impact of Housing Monitor led by the Public Works Studio in Beirut, an online platform tackling issues of housing injustice among marginalized social groups in the city. Via the provision of data, information services and public advocacy, the case highlights the initiative as a research organization advocating for more inclusive housing policies and housing reform. A key aspect of this case is its capacity to mobilize social advocacy to support individual residents facing housing difficulties while accumulating a wealth of data and information through extensive, long-term practice, and is ultimately fostering collaboration with other social organizations to establish more equitable urban housing policies within Beirut.

Case studies

Shanghai, China The Shanghai Xin-tiandi of Charity and Voluntary Services Park: an experimental field for sustainable social innovation

Case background

In the 21st century, the intensification of globalization and modernization has resulted in increasing uncertainties, and complex and diversified social problems. Traditional government administration, market supply and public welfare methods all suffer from information asymmetry, resource imbalance or lack of transparency, which cannot be effectively resolved. Therefore, countries around the world generally attach importance to introducing new thinking and methods, and reconstructing the partnership between government, market and society in order to promote the optimal allocation and efficient use of social resources, stimulate public participation and supervision, and thereby effectively solve social problems and improve social benefits. In addition, this proposes a constructive response to the goal of jointly achieving sustainable development through revitalizing global partnerships and creating peaceful and inclusive societies as proposed by the 2030 Agenda for Sustainable Development.

Globally, megacities including Shanghai are being challenged by surging populations and rapid mobility transitions. In order to make up for imbalances, a lack

of inclusivity and inadequate alignment caused by the supply of a single entity, the Shanghai Xin-tiandi of Charity and Voluntary Services Park (SPWNWP or “the Park”) attracts social entities to actively participate in the innovative supply of public services in areas such as serving the elderly, environmental protection, mother-child friendliness and community governance by building parks and platforms, and improving mechanisms. By promoting cooperation among diverse stakeholders, it helps to optimise the allocation and efficient use of public welfare resources, thereby effectively responding to social needs, promoting social innovation and social resource reproduction, and building an experimental field for social innovation.

Situated in a prime location in Shanghai's city centre, SPWNWP was initiated by the Shanghai Civil Affairs Bureau in 2010 and officially opened in November 2013. Covering an area of 23,000 square metres, it is currently the largest public welfare park in China, see Figure 3.1. Guided by the development concept of “innovation, openness and sharing”, SPWNWP explores a cooperative operation model under the leadership of the government, and with the participation of multiple stakeholders, promotes: public welfare partnerships, and extensive social mobilization and resource integration; helps the implementation of public welfare projects and the growth of public welfare organizations through interdisciplinary cooperation; and looks for the innovative solutions to social problems. The Park has long been committed to building a diversified public welfare ecology of “people-platform-resources” and improving the support system to assist social organizations and public welfare undertakings. Over the past 10 years, SPWNWP has unremittingly persisted

and opened up a public welfare path with Shanghai characteristics and in line with the general laws of urban development, become the most influential public welfare landmark in China. The various concepts,

methods and models formed during the practice will continue to demonstrate leading values in urban renewal and development.



Source: Provided by Shanghai Xin-tiandi of Charity and Voluntary Services Park

Figure 3.1 Map of the Shanghai Xin-tiandi of Charity and Voluntary Services Park

Implementation process

After 10 years of practice, the Park has gradually developed an operating model of “government leadership, enterprise support and social operation”, which integrates support funds, human capital, policy resources and social networks for the growth of social organizations and the development of public welfare undertakings. SPWNWP adheres to the notion of “open operation” and promotes the concept of “public welfare for everyone and everywhere” to the public. At present, more than 50 high-quality social organizations and public welfare teams have settled in SPWNWP, and five cooperation bases with three government agencies have been established. The Park has carried out the “Public Welfare New World” cultivation and funding plan for six consecutive years, held the Shanghai Social Organization Public Welfare Entrepreneurship Competition for five consecutive years, held joint recruitment of Shanghai social organizations for four consecutive years, and received an average of more than 50 domestic and foreign teams visiting on exchange and studies every year. With rich experimental scenarios and innovative experiences, SPWNWP supports the nurturing and incubation of social organizations, the exploration of new political and social relations and the development of public welfare undertakings as well as improvements to social governance systems. It has earned nationwide recognition as a prominent hub for allocating public welfare resources; a leading centre for promoting public welfare culture; a catalyst for public welfare innovation; and a showcase for demonstrating achievements in this field.

1. “Government, enterprise and society” cooperative operation

In 2010, the Shanghai Civil Affairs Bureau utilized the property of Shanghai Social Welfare Development Co., Ltd., a subsidiary of the Civil Affairs Bureau, to initiate the development of a municipal park and entrusted social organizations to provide specific operation and management services through government purchases. SPWNWP adopts a “Government + Enterprise + Society” cooperative operation model where the social enterprises provide the basic support services, the government purchases services and funds the projects, and social organizations operate the brand activities and link resources from all parties. Social organizations

settled in SPWNWP pay part of the Park construction and management fees. Multiple parties jointly set up a co-construction committee to participate in the Park’s governance and operation.

This innovative operational mechanism of social organization and co-construction of settled institutions with corporate support under government leadership does not only give full play to the endogenous motivation and social influence of social stakeholders, but also better maintains the sustainable operations and development of the Park. SPWNWP makes full use of its institutional advantages to carry out cross-governmental agency cooperation, and has successively connected with the Foreign Affairs Office of the Shanghai Municipal People’s Government, the Shanghai Municipal Human Resources and Social Security Bureau, and the Shanghai Municipal Education Commission to establish the Shanghai Social Organization External Exchange Demonstration Base, Shanghai Entrepreneurship Incubation Demonstration Base, Shanghai Employment Internship (Comprehensive) Base, Shanghai Public Welfare Entrepreneurship Education Practice Base and Shanghai Student Social Practice Base. Specific implementation and expansion are managed by social organizations to better promote public policies and integrated innovations, whilst also supporting platform development and the expansion of park resources.

2. Advocating for and leading a public welfare culture

SPWNWP is built on the former headquarters of Xinpuyutang – the largest foster care charity in the Far East in the 1920s and 30s where the first China Domestic Products Exhibition and the first National Art Exhibition were held. After the founding of the People’s Republic of China, it served as the headquarters of the Shanghai Children’s Welfare Institute until 2001. SPWNWP thus holds symbolic charity cultural heritage of over a century encompassing China’s first provincial civil affairs museum, social organization exhibition hall, welfare lottery cultural exhibition hall and municipal public welfare entrepreneurship base, all of which have witnessed the simultaneous development of Shanghai’s public welfare undertakings and urban society. As a showcase for the development of public welfare, the Park regularly holds public welfare activities such as experiences, markets and

stages to announce the latest achievements of social organizations and develop a communication platform for various public welfare projects. As activities extend from the Park city-wide through multi-level spaces of "city-district-street/town", it has expanded numerous public welfare opportunities including parks, business districts, campuses and communities, and has built an interdisciplinary cooperation ecosystem involving government organizations, enterprises, social organizations, the public and the media, so as to lead the promotion of public welfare, engage in the public welfare, and advocate the concept that "public welfare is a way of life".

SPWNWP took advantage of its numerous media contacts, wide coverage and rich resources to establish the Shanghai Public Welfare New Media Centre and join forces with a wide range of media entities to launch the Shanghai Public Welfare Selection, which is open to public welfare organizations and individuals. Through government, organizations, media and the public, the Selection develops effective public welfare communication, thereby promoting more open and transparent participation, and enhancing social influence. Each year the top 10 institutions, projects, bases, stories, partner companies and campuses are selected by media votes and online likes.

3. Incubation and cultivation of social organizations

Through social recruitment, expert review and formal signing, SPWNWP has attracted more than 50 social organizations and public welfare teams covering six categories including professional support, specific groups, community services, poverty alleviation, emergency disaster prevention and entrepreneurial incubation. The Park has gathered a number of front-line supporting social organizations such as the Shanghai United Foundation whose mission is uniting donors to support grassroots non-profits in China; Shanghai ForNGO Legal Research and Service Centre for Social Organizations that provides professional legal research and services; Shanghai Social Organization Evaluation Institute that promotes high-quality development of social organizations through evaluation; Shanghai Huangpu Haiyan Blog Public Welfare Development Centre that helps young white-collar employees in self-organization and personal growth; Shanghai Public Welfare New Media Centre

that is deeply involved in public welfare advocacy and communication; and other leading professional social organizations in subdivided fields and hub social organizations in local communities. Many social organizations in the Park have won honorary titles such as the National Advanced Social Organization, Candidate for China Charity Award Recommended by Shanghai, Shanghai Charity Award, Shanghai Brand Social Organization and Brand Project of Shanghai Social Organization.

The professional supportive social organizations represented by the Shanghai United Foundation (SUF) have played an active role in building partnerships among government, society and enterprises. SUF, established in 2009, is the first independent public grant-making foundation in Shanghai who moved into the Park in 2013. SUF is committed to encouraging more people to participate in public welfare joyfully and autonomously by uniting donors and making more contribution to a better society. As of the end of 2022, SUF has accumulated donation income of CNY 1.107 billion, public welfare expenditure of CNY 893 million, funded 6,338 public welfare projects in 32 provinces and cities across the country, and cooperated with more than 1,000 public welfare organizations. After settling in SPWNWP, SUF jointly established a special fund for social organization innovation and entrepreneurship with the Park's institutions which has raised more than CNY 750,000 to provide targeted support for the development of local start-up public welfare organizations.

4. Constructing an improved support system

The cultivation and support system of SPWNWP can cover the entire life cycle of public welfare organizations. SPWNWP provides basic public services and targeted cultivation support for public welfare teams and social organizations in the start-up, growing and mature stages, to accelerate their development. In terms of public services, it provides fixed project display and office space or free workstations at favourable rates, and indoor and outdoor public space to support public welfare projects and activities. SPWNWP also provides one-stop operation and management services, and sets up unified windows and processes to provide organizations with menu-style services involving transaction processing, space activities,

property services and convenient services. It has established a team of public welfare think tank experts, and invited leading and experienced practitioners in the public welfare and charity, as well as university tutors to provide professional consultation and personalized guidance to the organizations based there. SPWNWP integrates brand communication and cultivation resources, assists organizations in publicizing activities and displaying results through the Park's official WeChat and Weibo accounts and cooperative media, and supports outstanding institutions to apply for evaluations and awards. SPWNWP also carries out resource exchange among multiple stakeholders, opens up channels at both ends of supply and demand, and promotes interdisciplinary cooperation among government, society and enterprises.

In terms of cultivation and support, the funding plan for SPWNWP brand projects has been implemented since 2016. In accordance with the socialized operation model of "private operation with government subsidy", it focuses on discovering and cultivating potential, innovative and professional public welfare projects on the basis of funds raised by the applicant institution and supplemented by matching support from special government subsidy, and continues to explore the cultivation support and evaluation system for the Park's brand projects. As of the end of 2022, SPWNWP has invested more than CNY 5 million to support more than 50 projects of 30 social organizations. It has cultivated a number of public welfare projects with relatively mature models and industry influence such as the Shanghai Social Organization Public Welfare Entrepreneurship Competition and Public Welfare Development Camp.

The Shanghai Social Organization Public Welfare Entrepreneurship Competition is co-sponsored by the Shanghai Pujiang Social Organization Promotion Centre, the operation and management agency of the Park, and the Shanghai Songding Social Welfare Innovation and Development Centre. It focuses on pressing social needs, introduces social capital and builds a matching platform for supply and demand. Using competitions to promote construction, cultivation and alliance, it has carried out all-round empowerment training and full-chain system support to help implement public welfare projects in

communities and other social life scenarios, provided solutions for sustainable community development and promoted social organizations to participate in social governance innovation. The competition has been held for four consecutive years since 2019, attracting nearly 1,000 organizations, corporate public welfare and university teams. It mainly focuses on the protection and care of minors, services for the elderly, care for the disabled, women's development, community building, rural revitalization, cultural inheritance, employment and entrepreneurship. The Beautiful Nostalgia Culture Promotion Centre from Yangpu District, Shanghai which won the silver medal in the first competition, initially participated as a college public welfare team. Benefiting from expert comments and training empowerment in the competition, it was officially registered as a social organization in December 2019. With the mission and vision of "cultivating the seeds of hometown culture among youth and teenagers", it is dedicated to local cultural education and hometown revitalization. The Beautiful Nostalgic Ancient Village Inheritors Training Programme – Nuodeng Practice (China), initiated by the Beautiful Nostalgia Culture Promotion Centre, was selected as an outstanding case of UNESCO heritage education in 2021, with the person in charge selected into the Forbes 30 Under 30 list.

5. Cultivation and reserve of public welfare talents

In recent years, the Shanghai Municipal Civil Affairs Bureau has continued to carry out a series of initiatives to support college students' employment. SPWNWP has also made many explorations and attempts in the recruitment services, team training and communication of public welfare talents. For four consecutive years, the Park has hosted the Building Dreams for Public Welfare joint job fair held by social organizations in Shanghai to recruit talent. From 2020 to 2022, a total of 320 social organizations participated in the job fair, receiving more than 5,000 resumes and providing 1,823 positions for college graduates. SPWNWP collaborated with relevant partners to hold more than 25 special recruitment events, live job introductions, theme sharing sessions, seminar salons, etc., injecting new vitality into the development of social organizations and expanding their social influence. The job fair has better linked the resources of the Civil Affairs Bureau, Human Resources and Social Security Bureau, and

Education Committee and built an integrated service platform with the official WeChat and Weibo accounts of SPWNWP, the new platform of Shanghai Public Recruitment, and the Shanghai Student Employment and Entrepreneurship Service Network as the core. Not only was a closed loop process formed in regard to job solicitation, social recruitment and the development of job opportunities for universities and colleges, but the first municipal-level employment and internship (comprehensive) base was also established in the Park through the provision of internship work within the social organizations. By gradually iterating the multi-dimensional talent service functions of social organizations such as talent recruitment, employment internship, internship training and professional volunteers, the Park accumulates talent for the reserve and employment of social organizations, and promotes the cultivation of in-demand talents and the improvement of professional qualities.

SPWNWP launched the Shanghai Public Welfare Entrepreneurship Education Practice Base in 2019 with the goal of stimulating the enthusiasm of in-school students for public welfare entrepreneurship and promoting the innovation, creativity and entrepreneurship in the public welfare field, see Figure 3.2. SPWNWP has strategic relationships with many universities and colleges such as Shanghai Jiao Tong University, Tongji University and Shanghai University of Finance and Economics to cooperate in public welfare entrepreneurship and entrepreneurship-driven employment through workstation construction, development of series courses and social welfare



Source: Provided by Shanghai Xin-tiandi of Charity and Voluntary Services Park

Figure 3.2 Building dreams for public welfare

practice. In March 2022, the Park and the School of Economics and Management of Tongji University launched the Tongji University MBA and EMBA action learning plan with the theme of Social Innovation and Entrepreneurship. Using public welfare as a link medium, it introduces market concepts into public welfare and carries out project pairing and co-creation. As the only unit for public welfare entrepreneurship and education, the base operator was added to the list of supply-demand matching employment and education projects issued by the Ministry of Education in 2022, and has since received cooperation applications from more than 40 universities.

Reference experiences

Through interdisciplinary cooperation and resource integration, SPWNWP is committed to creating a window for promoting a public welfare culture, a growth platform for public welfare stakeholders and a development laboratory for public welfare undertakings. It explores innovative solutions to social challenges and contributes to the sustainable development of society. The relevant cases serve as good references and inspirations for other regions in terms of government actions, partnership building, public welfare financing and talent training.

1. Transformation of government role based on openness and inclusiveness

The government (specifically the civil affairs department), as SPWNWP's owner, project initiator and collaborative governance participant, has effectively demonstrated an attitude of openness, inclusiveness and seeking win-win cooperation. The government carries out pragmatic research at the grassroots level and actively promotes multi-party integration. In addition, when testing and promoting the social innovation concepts and practices, the government plays an important role in coordinating the interests of multiple stakeholders, providing policy support and fault-tolerant mechanisms, thereby ensuring the construction of a sustainable social innovation ecology from the institutional level.

2. Platform hub construction based on interdisciplinary cooperation

As a municipal-level platform, SPWNWP not only

specifies policy directions at the macro level, but also emphasizes the combination of macro policy guidance and specific practices. Guided by the original intention of charity and the concept of making charity a way of life, the Park advocates and promotes interdisciplinary cooperation by linking physical, social and online space, and continues to encourage organizations, foundations and the public to actively participate in public welfare undertakings. As a result, a healthy public welfare ecosystem has been formed and a more sustainable public welfare growth community is created. In addition to horizontal platform expansion, SPWNWP is also actively linking up with district levels, neighbourhoods and communities vertically including daily visits and surveys, park visit invitations, media publicity cooperation and project activity cooperation so as to strengthen the accumulation of practical experience and project optimization at the micro level, and create a broad and deep network of public welfare partnerships, see Figure 3.3.



Source: Provided by Shanghai Xin-tiandi of Charity and Voluntary Services Park

Figure 3.3 SPWNWP's partner month

3. Public welfare financing and redistribution based on ecological scenarios

SPWNWP focuses on social innovation, encouraging and supporting social innovation practitioners and public welfare projects. By establishing cooperation bases, accelerators and capital pools, it provides targeted support and assistance to start-up and innovative public welfare organizations and public welfare entrepreneurs. With the government seed funding and targeted policy support, social capital is stimulated to participate and support the projects

and teams that can generate positive social impact to achieve the dual goals of social value and finance sustainability. Such "public welfare financing" can also help public welfare better integrate into different fields and industries, and promote social development and economic growth. From a condensed scene like SPWNWP, public welfare ecology can also start from the construction of spatial platforms or scenes to unite multiple stakeholders to jointly create a public welfare atmosphere. A multi-point collaborative and network-connected public welfare ecosystem based on "people-platform-resources" is expected to be built to better develop and match public resources.

4. Talent cultivation and citizen education based on public welfare culture

SPWNWP focuses on connecting social welfare with the practical scenes for the growth of social organizations in the process of "Building Dreams for Public Welfare", educational practice and other activities. By cooperating with universities and other entities to improve the mechanism for cultivating and delivering public welfare talent, it puts people first to achieve the sustainability of public welfare undertakings. Through multi-field, multi-type and multi-level project cultivation and brand building, it combines popular activity forms and diversified publicity and promotion to deliver public welfare culture and talent resources at grassroots level. By emphasizing special groups and real social problems, it establishes correct public welfare values, and advocates the creation of a public welfare atmosphere in the whole society so as to create a good social environment in public welfare for everyone and everywhere.

5. Operation model and innovative mechanism based on multi-party cooperation

SPWNWP adopts a "government-society-enterprise" cooperation and operation model. Shanghai Municipal Civil Affairs Bureau took the lead in establishing the Park Management Committee with a subordinate of the Management Committee Office (Social Organization Service Office) which is responsible for decision-making and guidance on park affairs such as planning formulation, brand budget preparation, operation and management coordination. As an enterprise affiliated to the bureau, Shanghai Social Welfare Development Co., Ltd. serves as the owner and is responsible for

basic operation support of SPWNWP such as asset management, hardware operation and maintenance, security and logistics, etc. Through government purchase of services, Shanghai Pujiang Social Organization Promotion Centre is entrusted to serve as the operator and is responsible for the construction, development and operation of the Park such as the management service of resident institutions,

park activity planning and brand project cultivation. Social organizations located in the Park undertake part of the operation and management fees, which are used to support its sustainable development. The representative institutions of SPWNWP and the management party jointly established a Co-construction Committee to engage in collaborative consultation and governance of park affairs.

Shanghai, China Meta-placemaking using digital medals to create coherent social capital

In 2021, the metaverse, often referred to as “Web 3.0”, made a wide-scale societal impact primarily driven by blockchain technology and virtual reality. During this period, the Shanghai municipal government proposed development of the metaverse industry with an emphasis on the application of technological innovation in social life, and also discussed the potential use of NFTs to promote various financial services within this emerging digital landscape.

In parallel with proposed metaverse industry development, the government has sought to explore community-oriented use cases to facilitate its practical implementation. Both the Xinhua Road community in Puxi and the Dongming Road community in Pudong symbolize two prominent examples of meta-placemaking within the city¹. Both communities leverage the open-source metaverse tool “Comupage” to autonomously organize and distribute metaverse medals (or NFT medals) to encourage bottom-up community participation.

During the epidemic prevention and control process in Shanghai, urban life has undergone significant digital transformation. Despite the widespread popularity of digital tools, some citizens remain hesitant to adopt them due to uncertainties about their information rights. Public participation witnessed during crises such as the COVID-19 pandemic often goes unrecorded, leaving community volunteers

unrecognized once the crisis subsides. In this context, Comupage employs NFTs to create metaverse medals that document the contributions of community volunteers. These medals are not tied to the platform website but instead linked to the blockchain address of individual community members. With the attribute of immutability, metaverse medals grant holders complete transparency over their information rights, effectively enhancing their incentivization.

Puxi and Pudong have both issued metaverse medals to their communities. The Xinhua Road community in Puxi has issued 240 “City Hero NFTs” as recognition to community volunteers who contributed, see Figure 3.4. These medals are integrated into the community’s ecosystem, offering holders benefits such as free coffee at specific stores and the right to participate in various community activities. The Dongming Road community in Pudong has awarded 200 “Cute Power NFTs” to participants in their street renewal project, see Figure 3.5. The reward has effectively stimulated the progress of neighbourhood centre development, children-friendly community initiatives and other projects. With the cross-platform functionality of blockchain, medal holders can further engage with community donations, commerce and other endeavours.

The metaverse medals on Comupage are generated for free through the Shanghai Tuchain (Conflux) public

¹ Meta-placemaking refers to the application of metaverse technology to foster community self-governance through digital transformation.



Source: Provided by the authors

Figure 3.4 “City Hero NFTs” in the Xinhua Road Community, Puxi

welfare project, reflecting the aim of technology serving society and reducing the cost of government digital governance. Digital assets are therefore becoming key resources generated by communities whereby elements such as volunteer actions and carbon credits can be condensed into community digital assets via metaverse badges. Shanghai's creation of the



Source: Provided by the authors

Figure 3.5 “Cute Power NFTs” in the Dongming Road Community, Pudong

Metaverse Community can promote community-based digital transformation within the Zhejiang Province and other leading regions in the digital economy, scaling nationwide over time. Through operating within the Metaverse Community, residents can experience effectively recorded and activated social capital based on community autonomy and endogenous power.

State of Colorado, United States of America

Creative districts do-it-yourself programme: Call Yourself Creative

Case background

The potential impact of tourism development and climate change and the fear of displacement associated with community gentrification are a common dilemma for low-income creatives, and the changing needs of future communities over time are calling for a strategy to adapt to these changes. Questions remain such as how to retain people and residents while protecting the arts and culture of a certain region, and how to maintain the development of the current artistic and cultural foundation of a community while ensuring that the community remains affordable and accessible; processes that many cities are going through worldwide and issues that need to be critically explored.

A 2008 report *The State of Colorado's Creative Economy* identified creative enterprises as the fifth largest economic cluster in the state itself. Creative districts are economic development tools for the larger community, region and state. In 2010, renaming the Colorado Council on the Arts as Colorado Creative Industries (CCI), and transferring CCI into the Office of Economic Development and International Trade represented the recognition of arts and culture as major economic drivers. CCI is committed to supporting the creative economy, thereby connecting people, inspiring social change and boosting economic vitality. Whether motivated by a higher sense of social responsibility, the goal of economic development, the responsibility to preserve tradition and heritage, and the desire for change and growth or driven by a genuine desire to

attract resources for creating creative communities and ensuring their sustainability, community engagement is key to the healthy development of creative communities. In response to this, CCI has introduced a do-it-yourself (DIY) programme to promote community engagement named Call Yourself Creative (CYC) which complements and cooperates with the Colorado Creative Districts (CCD) programme.

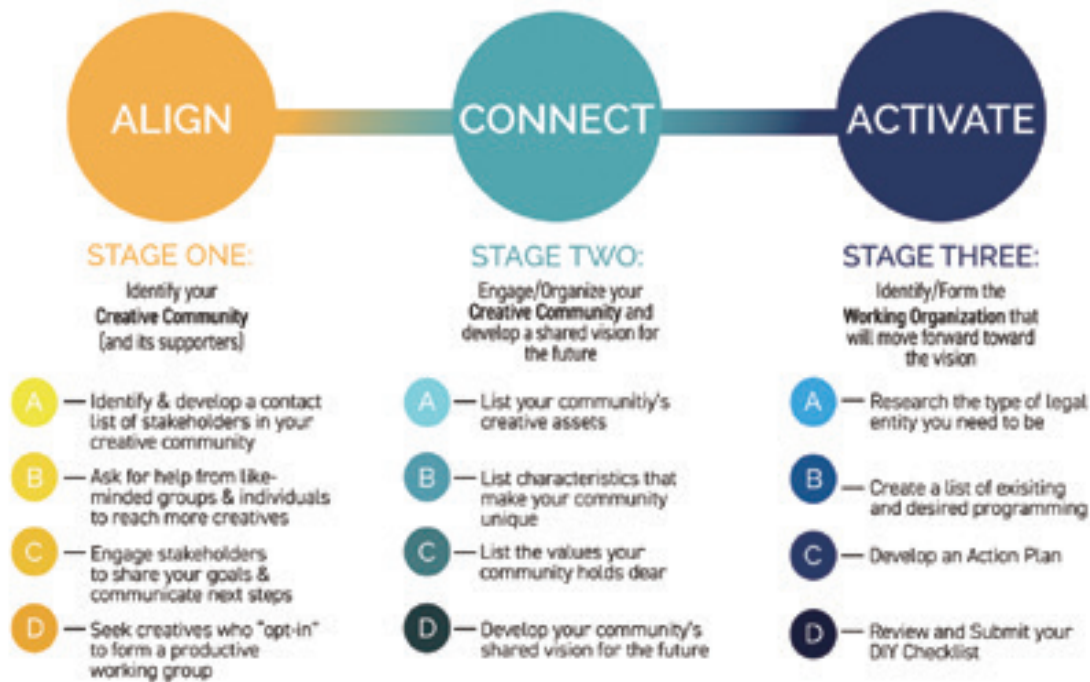
The CCD programme certifies communities that contribute to Colorado state's economy through creativity, culture and the arts with the goal to help communities increase jobs, incomes and investment in creative places¹. CYC is a free, self-paced programme accessible to anyone who intends to create and sustain creative communities and districts. CYC aims to: support a state-wide initiative to bolster Colorado's creative economy; foster the development of new and emerging creative communities; advance existing creative districts with tools and resources; and serve as a national resource for other states seeking to use the Colorado CCI model to support its creative communities¹. For some communities that are not yet qualified for certification or do not wish to be officially certified, CYC is a more flexible and accessible option.

The ultimate and primary goal of CYC is to establish a diversified community economy with creative industries at its core, where everyone, especially those who lack economic opportunities, can be entitled to chances for engagement. People can be empowered and come together to develop a shared vision for the future, which serves as the most valuable part of the programme. On the basis of this core goal and value, CCI and The Creativity Lab² teamed up to develop the DIY process (align – connect – activate) and support tools and resources, as shown in Figure 3.6. The DIY process leverages collective experiences in

1 Call Yourself Creative. Call Yourself Creative DIY Process. <https://callyourselfcreative.org/>.

2 The Creativity Lab of Colorado is an active partner of Colorado's Office of Economic Development and International Trade and comprises a collection of collaborative capabilities centred around creativity, innovation and the entrepreneurial spirit. As a public-private 501(c)3 non-profit, the Lab was formed in 2015 in 40 West Arts District (Lakewood, CO) and is supported by CCI and other community partners. It serves students and start-ups, emerging entrepreneurs and existing businesses, and creatives and community leaders through three focus areas: the Creative Business Incubator, the Community Design Studio, and the Institute for Creative Community Leadership – each of which is aimed at empowering the art of entrepreneurship. The Lab is also working toward its goal of conducting primary research to contribute to the growing body of knowledge on entrepreneurship, human creativity and the creative process. <http://www.creativitylabcolorado.org/>.

THE CALL YOURSELF CREATIVE DIY PROCESS



Source: The Creativity Lab of Colorado is an active partner of Colorado's Office of Economic Development and International Trade and comprises a collection of collaborative capabilities centred around creativity, innovation and the entrepreneurial spirit. As a public-private 501(c)3 non-profit, the Lab was formed in 2015 in 40 West Arts District (Lakewood, CO) and is supported by CCI and other community partners. It serves students and start-ups, emerging entrepreneurs and existing businesses, and creatives and community leaders through three focus areas: the Creative Business Incubator, the Community Design Studio, and the Institute for Creative Community Leadership – each of which is aimed at empowering the art of entrepreneurship. The Lab is also working toward its goal of conducting primary research to contribute to the growing body of knowledge on entrepreneurship, human creativity and the creative process. <http://www.creativitylabcolorado.org/>

Figure 3.6 The DIY process of the Call Yourself Creative programme

creative communities throughout the state where tools and resources enable actions for a shared vision by bringing more people together, which provides more opportunities including certification. There are currently 30 certified creative districts in Colorado, see Figure 3.7.

Through inclusive and collaborative governance strategies and DIY process design, CYC encourages society to rethink governance in a human-centred and responsible way, enabling creative communities to remain adaptable, dynamic and thriving. While fostering inclusive and vibrant communities, shaping a local spirit that promotes creativity, collaboration, innovation and artistic exploration, it amplifies the uniqueness

of the community, augments its economic and civic capital, and enhances residents' sense of belonging and subjectivity, all of which are critical foundations for the healthy development of a community.

Implementation process

1. Align: identify and develop a contact list for stakeholders in your creative community, and build relationships with them

Core work for stage 1 "Align" includes "finding and recording contact information for artists, creatives, arts supporters and other stakeholders in your community; asking for help to find creatives from like-minded



Source: Colorado Office of Economic Development & International Trade. Colorado Creative Districts

Figure 3.7 Distribution of Colorado Certified Creative Districts

individuals and organizations; seeking creatives who self-select (or opt-in) to willingly participate with individuals to form a working group; engaging with stakeholders, share your goals and communicate near-term next steps; and continue to build stakeholder contact list throughout the entire DIY process¹."

Here, it is important to first define the stakeholders, namely "those individuals and organizations that will benefit from, contribute to, or in some way be impacted by your creative district including: local artists and artisans; art teachers and students in local schools and colleges; local creative business owners; local mainstream business owners; local art lovers/patrons; members of local arts and culture groups, councils, guilds, leagues, organizations; agencies and non-profits (public and private); members of local civic/service groups including Kiwanis, Optimists and others; members (and leaders) of local homeowners' associations; leaders and staff members at your Chamber of Commerce; staff members from your local jurisdiction(s) including City Manager, Public Information Officer(s), Planning Director, Head of Economic Development/Travel & Tourism, Public

Works, Community Resources, Parks and Recreations, Public Safety, Police Department, etc., and all departments in your municipality should know about your community effort: elected officials including your Mayor, Council members, Commissioners, etc.; local media/reporters who cover arts, culture and related community activities¹."

"Building relationships takes time. Not everyone is going to be as enthusiastic as the creative district leadership team, straight off the bat. Part of forming a relationship is building trust, and as people begin to trust district leaders, and feel they are heard and that the project responds to their needs, their perceptions and ideas about the project will evolve. People who were seemingly never available to attend any of your meetings and activities might, as the project develops and the creative district's commitment to the community becomes apparent, suddenly be more available²." More importantly, the process of building relationships also helps creative community organizers better understand what the community really needs.

It should be noted that public process and community

1 Call Yourself Creative. Call Yourself Creative DIY Process. <https://callyourselfcreative.org/>.

2 Fred Glick. Community Engagement: A Primer. <https://static1.squarespace.com/static/5a52608c6957daf825396e64/t/5bc52b471905f43d0f21cf90/1539648327412/Community+Engagement-+A+Primer.pdf>.

involvement is key to success, empowering the community you are working with by making sure they have a voice in key decisions. Creating stakeholder groups of those within local communities to lead projects has also demonstrated success in advancing projects forward. Prior to events, clearly defining partner roles, demonstrating creativity in implementation and hiring individuals from the local communities themselves to carry out outreach, helps to show investment in the community in a different way¹.

2.Connect: Create a collaborative culture, articulate your community's authentic story, and distil a shared vision that propels your community forward

A key goal in stage two "Connect" is to identify and articulate the personality of communities. Authenticity is vital whereby individual "stories" provide context and commonality to individual groups and to those seeking to learn more about them. Individual stories are simply who they are collectively and reflect what they bring into the future. The ultimate goal for this stage is to reconcile and embrace the authentic "self"

of individuals and communities, develop desired outcomes for the future and effectively distil that down to a compelling shared vision for local communities², see Figure 3.8.

This stage consists of a series of gatherings and collaborative activities among stakeholders including scheduling and convening stakeholders, and facilitating open and inclusive discussions about the broader goals and objectives for organizing as creative communities or districts. In addition, it involves: developing a rough timeline for moving the process forward; completing activities to identify and list the arts and cultural assets of individual cities and municipalities as well as their unique characteristics namely qualities and features that reflect their collective history, heritage, and uniqueness (community authenticity); discussing and documenting their core values – the core beliefs that collectively bind creative communities together following a collaborative process to develop and share an "aspirational" vision for individual groups³.



Source: Susan Fries. Engaging Your Community in the Creative District Planning Process: The World Cafe. <https://static1.squarespace.com/static/5a52608c6957daf825396e64/t/5bc528ccc830253b48908d19/1539647698170/Engaging+Your+Community+in+the+Creative+District+Planning+Process--The+World+Cafe.pdf>

Figure 3.8 The process of sharing and listening creates a cohesive community vision

1 Colorado creative industries best practices/toolkit.

2 Call Yourself Creative. Call Yourself Creative Process. <http://callyourselfcreative.org/>.

3 Susan Fries. Engaging Your Community in the Creative District Planning Process: The World Cafe. <https://static1.squarespace.com/static/5a52608c6957daf825396e64/t/5bc528ccc830253b48908d19/1539647698170/Engaging+Your+Community+in+the+Creative+District+Planning+Process--The+World+Cafe.pdf>.

The focus and difficulty of this stage is how to engage a wide range of stakeholders. In this regard, leaders of creative communities should firmly believe that community members are not onlookers but those who live, work and own property here. Each of them deserves an opportunity to shape this place, an imperative process for community development and a social responsibility, see Figure 3.9 . It will become clear that “not everyone will get what they want, including leaders, but that everyone has a voice and

should be heard. As a consequence, an inclusive, collaborative approach that engages more stakeholders and allows for a full range of voices and consensus is of vital significance. A critical intangible element in this process is leadership. While some similarities exist, what's needed isn't the typical “corporate-style” leadership, but rather service-oriented leadership. It's not just a willingness to serve and work collaboratively toward desired outcomes, but also to always put the organization, its sustainability and its momentum



Source: Carbondale Creative District, (2021). Community Mural on 4th St. <http://www.carbondalecreativedistrict.com/mural-blog/2021/12/7/community-mural-on-4th-st>

Figure 3.9 Wall painting is a powerful way to express identity, tell stories and boost community vitality.

The Carbondale Arts Creative Community's Wall Painting Programme activates civic space by engaging local communities, artists and organizations to co-create wall paintings throughout the community

toward its shared vision at the forefront¹." It is based on such ideas that creative communities are likely to serve as a major force in building democratic societies.

3. Activate: is focused on making implementation operational, specifically legal structures, governance, partner synergies, programming and planning

Stage three "Activate" is focused on making implementation operational including: determining the optimal type of legal entity for an organization's mission; aggregating and organizing community arts and culture programming; brainstorming future arts and culture activities for communities with their programming partners; developing an action plan that covers the current year and at least one additional year; and completing and submitting your CYC DIY checklist.

"Programming is clearly only part of the overall planning process, but it is central to the operation of a creative district²". Programming for existing and desired future programmes is also an exercise that helps community organizers think in line with a creative district. Despite comprehensive and strategic characteristics of overall programming that helps to create an action plan for organizations, current and future programming is more operationally instructive in developing action plans. "Whether you call this an Action Plan or a Strategic Plan is just semantics. Both effectively serve the same purpose. For simplicity, let's call it an Action Plan here. An Action Plan is an invaluable tool. It should be a living document that is developed by an organization's board along with other key operational personnel (even if they are volunteers). What matters is not developing an Action Plan, but the process of implementation. Action Plans come in many shapes and sizes from a detailed narrative on every aspect of operations to a one-page outline highlighting the important goals for the coming year²."

Colorado has summarized a simple but effective "five-

step planning process" based on practical experience. Firstly, "reflect and document your successes and shortcomings from the last year (or if you are new, document your desired outcomes for the coming year or two). Whether you are an existing organization or a new one, you can benefit from an honest assessment of your strengths, weaknesses, opportunities and threats (SWOT analysis)." Learning from both mistakes and successes is an important step forward in developing an Action Plan. Secondly, "develop and isolate a set of goals that address shortcomings or further desired outcomes for the next year or two. As you work through this (or another) process, keep your organization's vision in mind and think in terms of both financial and operational fronts such as revenue, expenses and personnel as well as programming, customer experience, footprint growth and overall capacity" and sort them by priority. Thirdly, "develop and document specific programmes or activities designed to help the organization achieve the desired outcomes and assign responsibility for each programme/activity." Resources required to achieve a series of goals should be considered in each programme. Besides being realistic, expanding resources is also a must. Fourthly, "select an associated set of metrics (quantitative if possible) to measure performance of the programmes/activities." The metrics may be a year-to-year percentage of growth or an increase in volume. Achievable metrics should be set but do not be discouraged if they are not met. Quantitative metrics are a way to measure progress and success. And finally, "set dates on your calendar quarterly to revisit the plan and its metrics so you can make course corrections along the way²." Consequently, it is clear that planning is actually a continuous and gradual organic process.

As a note of caution, do not develop plans alone. Seek opinions and feedback from within the organization/working group to make planning an inclusive process and the impetus that drives the organization forward. Planning is not just an annual but a quarterly event.

1 Susan Fries. Engaging Your Community in the Creative District Planning Process: The World Cafe. <https://static1.squarespace.com/static/5a52608c6957daf825396e64/t/5bcb28ccc830253b48908d19/1539647698170/Engaging+Your+Community+in+the+Creative+District+Planning+Process+The+World+Cafe.pdf>.

2 Carbondale Creative District, (2021). Community Mural on 4th St. <http://www.carbondalecreativedistrict.com/mural-blog/2021/12/7/community-mural-on-4th-st>.

References experiences

1. Designing a logical sequence is key to establishing successful creative districts

"There is a rhythm in life that is reflected in art and that same rhythm should be reflected in any endeavour to establish a Creative District. To go through the process of forming such an entity without following a logical sequence of steps may result in failure¹" As this report highlights, in regard to the experience of CCD,

"There is a logical sequence of activities that should be considered for any entity contemplating becoming a designated Creative District. This includes taking a critical look at the assets and resources available in the community, and determining if there is broad and deep enough support to even begin the journey¹." At the early stage of development, attention should be paid to the evaluation of five elements: who, what, when, where and why.

Who: how many people are currently engaged in the conversation? Is this the dream of one or two individuals, or is it a shared vision among many? Does that circle of influence include artists? Does it include local businesses? Are local elected and appointed leaders aware of the interest and are they involved in any way, and do they see it as a sound strategy? Are there enough people to sustain what could be an 18 ~ 24-month effort before it's even feasible to apply to be a Candidate Creative District? Is there an existing organization that has similar enough goals to help with the effort or will it require an entirely new entity to be created?

What: does the group have a shared vision about creativity and the arts as an economic driver and organizing principle for their community?

When: has the group thought about timing and the amount of time and effort that will be required to establish a Creative District? Is there a willingness to commit to an undertaking that may take months to get started, and perhaps years to come to full fruition?

Where: has the group identified boundaries that make sense, given the existing density of creative business and activity? Is it a neighbourhood, a corridor, the entire downtown? The legislation specifies "contiguous" assets, so an area that is gerrymandered to include a single outlying organization – however important that organization might be – might not be workable.

Why: has the group identified what makes the community unique, as well as the benefits that might accrue from establishing a Creative District? The benefits are not only economic and cultural, but also social, connecting neighbours in a shared experience with bonds that may well last longer than the event or festival. And because a Creative District engages other community systems such as transportation planning, historic preservation, even safety issues, the benefits may be comprehensive. Is the group aware of the potential scope of what planning for a Creative District may involve? And do they understand that such benefits are the results of true collaborations in which everyone "gets a little, but gives a little" in order to fulfill a shared collective dream?

CCI has identified standards for a thriving Creative District. These include: articulating the elements that make a community unique; engaging local government; integration with other community systems, as mentioned above; a density of creative businesses

and experiences; sound management and planning; and ongoing community buy-in. CCI requires that CCD track indicators of impact – "values reporting¹". These standards and activities are interrelated, further emphasizing the importance of sequencing or process

¹ Florine Raitano and Maryo Gard Ewell. Colorado Creative Districts – an introduction for start-up districts.

design. Each community's actual path and sequencing of activities will be varied.

2. Managing, measuring and demonstrating "success" is critical for healthy district development

"Developing, nurturing and building a successful Creative District and putting in place the resources to support it, is no doubt where you'll be spending most of your energy and resources, particularly in the early years of your development. But just as important as sewing those seeds is measuring their growth. The ability for your district to demonstrate measurable impact can help you win stakeholder and political support, can allow you to leverage more money and other resources and can give you a voice and a 'seat at the table' in your community¹."

So how do we measure success? The first step is to establish benchmarks. "Identify where you'll be spending your time and money and establish benchmarks around things that can effectively demonstrate impact in those areas." Then, "Know your audiences such as the community, stakeholders and local government, and measure and report things that will mean something to them. If your local government is keen on supporting programmes that bring more visitors, make sure you are tracking visitation driven by your events and programming¹."

CCD typically regard activity attendance and engagement, increment and repeated participation rate of participants, programme funding and sources, social media comments and sharing, partnerships and

participant feedback as key metrics for measuring success. "CCI also requires that Certified Creative Districts track indicators of impact – 'values reporting'²." Information is power. Being able to make a clear case for the impact your programmes and projects are having and being able to tell an impactful story with that information is extremely important. The information is meant to provoke thought about the important elements you need to have in place to ensure a healthy and sustainable district¹.

3. Explore and establish diverse funding strategies suitable for your community, and recognize the close link between fundraising and effective community engagement and programming

"Finding and securing external funding is never an easy task. But Creative Districts have the advantage – the best of the non-profit and for-profit worlds as they create a fresh, contemporary place that responds to many local needs¹."

It is important that every district assembles their own distinctive funding strategy, exploring multiple funding methods to provide resources for a range of purposes. Besides establishing associations; collecting membership fees; finding sponsors; applying for funds from governments at all levels, foundations and art organizations; crowdfunding; and other familiar funding sources, CCD are also actively exploring Business Improvement Districts (BID)³, Tax Increment Financing (TIF)⁴, Community Development Corporations (CDCs)⁵ and other ways for securing funds, see Figure 3.10. "The best approach to figuring out an organizational

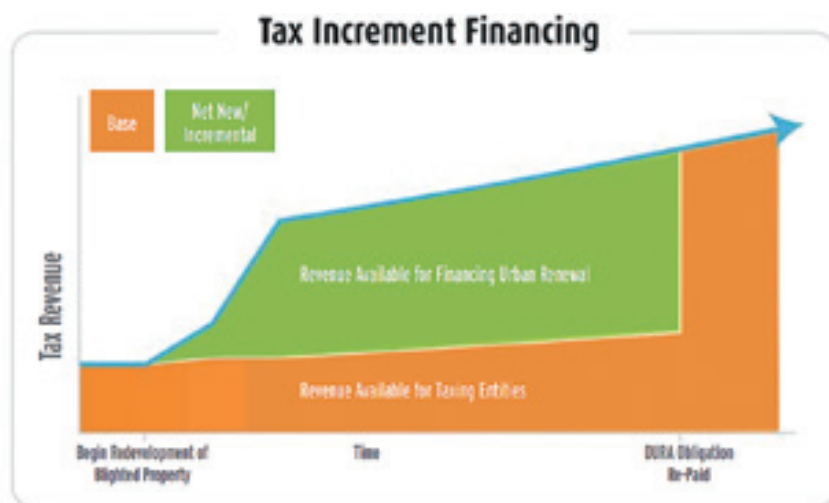
1 CCI Webinar Notes 7 – Managing and Measuring Success.

2 Florine Raitano and Maryo Gard Ewell. Colorado Creative Districts – an introduction for start-up districts.

3 BIDs are special districts created by stakeholders in a district, for stakeholders in a district. They are funded through a self-assessment on commercial property within a defined area in which everyone must mandatorily pay. The revenue generated is ringfenced for reinvestment into the district to fund a variety of services, including marketing, advocacy, economic development and public realm improvements, as well as the management of the district. BIDs are created through both a petition and vote of stakeholders in an area and provide a guaranteed funding stream for an extended period of time. (CCI Webinar Notes 6 – Finding Funding).

4 Tax Increment Financing (TIF) utilizes the incremental increase in property and sales tax in an area over an extended period of time to be reinvested to improve an area. In Colorado, there are two primary delivery vehicles for TIF: a Downtown Development Authority (DDA) and an Urban Redevelopment Authority (URA). TIF can be used to fund infrastructure, economic development, real estate development and, in certain cases, district management. Like BIDs, most TIF districts require stakeholder support. Source: CCI Webinar Notes 6 – Finding Funding.

5 CDCs are community-based non-profit corporations focused on physical development, economic development and community development. They leverage a diversity of funds (general fund, grants, fees, private investment/donations, etc.) to invest in a company that is focused on improving a specific area, and they are flexible and able to fund diverse projects because they are a non-governmental non-profit organization. Source: CCI Webinar Notes 6 – Finding Funding.



Source: CCI Webinar Notes 6: Finding Funding 3

Figure 3.10 Tax Increment Financing Model

and funding strategy for a Creative District is to first determine the overall goals for the district and the issues that must be overcome to achieve those goals. This will help to determine what funding tools might best be suited to help district leaders address goals. Setting all of this out in a district strategy or plan is the best starting place to help leaders pick the right approaches that will lead to success¹.”

Bogotá, Colombia The Bogotá CARE System: reshaping public services and infrastructure delivery for women

Case background

In Latin America and many other regions in the world, women and girls are currently acting as full-time caregivers with no financial remuneration and no fair valuation system, and consequently have been deprived of both economic and social value. The implementation of Bogotá’s CARE System highlights the city’s efforts to reshape the value of care by relocating caregivers and care services in the urban

planning system.

Unpaid care work is massively disproportionate falling heavily on women across Colombia. In Bogotá, a study carried out by the Secretary of Women’s Affairs indicated that 30 percent of the female population act as full-time, unpaid caregivers, translating to approximately 3.6 million women of which 1.2 million do so full-time². Out of this population, 70 percent have no opportunity to pursue secondary school education, 33 percent lack any free time for self-care, 21 percent have diagnosed illnesses, 90 percent are on a low-income and 0 percent have economic autonomy² highlighting the deep inequalities and “time-poverty” that such work enforces on women across the city. Consequently, the critical contribution of women to society has largely been invisible and unrecognized.

An active feminist movement has long been present in Latin America which has made clear the deep socioeconomic and cultural inequalities between women and men in the sector of unpaid domestic care work. Passed by the Congress of Colombia on 11 November 2010, Act 1413 (2010) legally requires the Colombian National Statistics Agency DANE to collect

1 Licko, J. Organizational and Funding Tools for Creative Districts.

2 Observatory of Public Sector Innovation, (2020). Bogotá Care Blocks. <https://oecd-opsi.org/innovations/bogota-care-blocks/>.

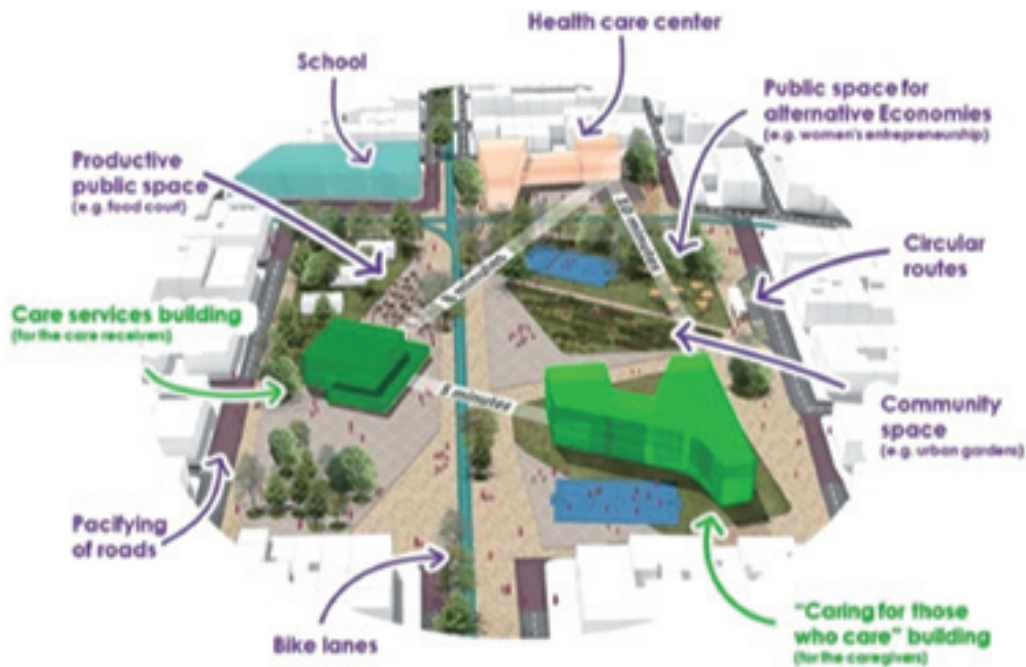
data monitoring the economic value of the country's care economy and assess its overall economic contribution to the nation's GDP.¹ In 2021, the impact of women's unpaid care work constituted approximately 13 percent of national GDP and 20 percent of Bogotá's GDP.² This unequal responsibility of unpaid care only exacerbates and entrenches gender inequality, reduces political participation among women and decreases economic gains in Colombia's society. Such gender-based role allocation also serves to reinforce domestic violence.

The COVID-19 pandemic only increased these systemic disadvantages and patterns of inequality leading Bogotá to take radical action to mitigate such burdens of home care and increase the quality of life and access to opportunities for women. In late 2020, the city government launched the "Care Block" initiative, aiming to integrate key services into a centralized

space for female caregivers as part of a city-wide care system – a human-centred, innovative "economy of care" strategy and the first of its kind in Latin America.

Implementation process

Developed as a comprehensive, "ease-of-access" model, the introduction of Care Blocks has required a reorganization as to how the city is planned, operating to actively bring services to the homes of caregivers, see Figure 3.11. As a context-specific solution, the blocks have marked a novel approach to such an acute challenge in the city, incorporating a new criterion for Bogotá's urban planning model that positions women, caregivers and care work at the centre of the city's management. Importantly, the system is built on the premise that the care economy operates for the overall public good in the city, whereby the process of ensuring a more equitable distribution of



Source: Diana Rodríguez Franco, (2022). The Bogotá CARE System: How a city is reorganizing itself for women. https://www.brookings.edu/wp-content/uploads/2021/12/City-playbook_Bogota.pdf

Figure 3.11 Example spatial layout of a model Care Block

- 1 OECD, (2020). Overview of gender equality in Colombia. In Gender Equality in Colombia Access to Justice and Politics at the Local Level. OECD Publishing, Paris.
- 2 Diana Rodríguez Franco, (2022). The Bogotá CARE System: How a city is reorganizing itself for women. https://www.brookings.edu/wp-content/uploads/2021/12/City-playbook_Bogota.pdf.

care work necessitates both material and cultural change. Through clustering, the integrated service delivery model operates with much greater efficiency than dispersed service provision, especially where caregivers often have restricted mobility and time, and it eliminates any previous support barriers. Designed for different modalities, the Care System adopts three unique service delivery mechanisms including Care Blocks, Care Buses and door-to-door care.

At the core of the Care System, Care Blocks act as hubs where caregivers and those they care for can access key public services including: day-care; flexible high school education programmes; professional and skills training, and income-generating activities; psychosocial support and wellness promotion; peer support; dance and exercise; as well as cultural workshops on caregiving for both men and women. The blocks are situated within 15 ~ 20 minute walking distances for most of the potential users, often

in an 800 m vicinity, eliminating the need for long and demanding travel. To ensure blocks are easily accessible, bike lanes and circular routes are integrated, whilst off-roads are pacified to increase their safety. Productive public spaces such as food courts and community spaces including urban gardens are also created within blocks, providing areas for alternative economies such as women's entrepreneurship and income-generating activities.

Between October 2020 and January 2023, Bogotá's municipal government operated 15 Care Blocks across the city providing 300,000 services, as shown in Figure 3.12. The city plans to construct a total of 20 blocks over 2023¹, with a total of 45 blocks to be delivered by 2035 – incorporated as part of the Bogotá Urban Master Plan. With support from the United Nations Economic Commission for Latin America and the Caribbean, a prioritization index was developed to determine optimal locations for Care Blocks across



Source: City of Bogotá – District System of Care. Bogotá Care Blocks: Transformation and Public Innovation at a City Scale. https://www.manzanasdelcuidado.gov.co/conocelasen5minutos/english_/docs_/the-bogota-CARE-System_.pdf

Figure 3.12 Aerial view of a Care Block

¹ City of Bogotá – District System of Care. Bogotá Care Blocks: Transformation and Public Innovation at a City Scale. https://www.manzanasdelcuidado.gov.co/conocelasen5minutos/english_/docs_/the-bogota-CARE-System_.pdf.

the city, utilizing variables such as the demand for care, caregiver density, and participatory budgets and poverty, each weighted evenly. Additional factors such as the availability of care equipment, land availability, mobility megaprojects and projects prioritized in the master plan were also considered. Further research conducted by New York University is being used to ensure the optimal placement of the 45 blocks proposed in the 2035 Urban Master Plan of Bogotá, designed over 16 months with over 27,000 inputs from more than 23,000 people.

Where around 75 percent of Bogotá is rural outside the planned municipal boundary with a shortage of public services and poor accessibility, Care Buses operate as mobile versions of Care Blocks. Caregivers can rarely travel long distances away from their homes to attend personal or professional needs, and services offered in the city are largely siloed in a few centralized areas. Care Buses adopt the same characterization as Care Blocks, offering the same services with an emphasis on education-related activities, and change their location every five months to maximize accessibility for all caregivers. Bogotá currently runs two buses reaching 11,988 women and their dependents within the first year of their operation¹.

A significant number of full-time female caregivers are unable to access public services outside their own homes due to immobility, disabilities or a lack of independence due to their age, and thus cannot access Care Blocks or Care Buses, see Figure 3.13. To cater for these 14 percent of individuals, Care Home (a “Relay Programme”) was established to enable direct service delivery to their houses. Although capital intensive, this is an integral part of the system as it reaches people most in need who may otherwise remain invisible and excluded from regular service provision.

The lack of recognition and support for unpaid caregivers is complex, and a product of cultural and normative sensemaking across a whole society. Consequently, addressing these issues required a strategy to challenge traditional approaches to care.



Source: City of Bogotá. Dates and points where you can get on to Care Buses Free Services. <https://bogota.gov.co/mi-ciudad/mujer/buses-del-cuidado-en-bogota-brindan-servicios-gratis-en-6-localidades>

Figure 3.13 Mobile Care Buses increase free access to services for caregivers located in less connected parts of the city and for those who may be unable to reach Care Blocks

The Care System has integrated three cross-cutting features that are effective, long-lasting and powerful at a societal level. Firstly, a Care School for Men provides courses to acquire new skills relating to care work, and gain an appreciation of social care as meaningful work. Secondly, efforts have been made to change the culture around gender norms at the societal level, a deep-rooted issue in which ambitious public attitudinal shift campaigns on the value of care work is helping to bridge the gap as to who undertakes it in society. Lastly, the Care Alliance clusters a dynamic network of private sector actors, NGOs, academia and civil society organizations to increase discussion of care matters. The alliance has offered cultural transformation workshops at various universities and some of Bogotá’s largest private sector companies, see Figure 3.14, and has received in-kind support as well as equipment such as washing machines and dryers which has helped the launch of the city’s first public laundry facility – placed in a Care Block. The alliance also seeks to amplify the voice of caregivers and ensure they have votes in decision-making such as via participation in the Intersectional Commission of the Care System.

The Care System has already brought about a number of positive impacts on initial beneficiaries of the scheme. As of July 2022, the system had provided up

¹ City of Bogotá – District System of Care. Bogotá Care Blocks: Transformation and Public Innovation at a City Scale. https://www.manzanasdelcuidado.gov.co/conocelasen5minutos/english/_docs_/the-bogota-CARE-System_.pdf.



Source: Observatory of Public Sector Innovation, (2020). Bogotá Care Blocks. <https://oecd-opsi.org/innovations/bogota-care-blocks/>

Figure 3.14 Female caregivers are presented with opportunities to connect, build networks and develop skills via professional services integration into Care Blocks

to 160,000 services in which 10 Care Blocks around the city provided 138,907 services; Care Buses provided 11,988 services; and Care Home programmes impacted 2,000 households as documented by the Secretariat for Women. Furthermore, over 6,159 caregivers have been given training with 6,827 people trained in workshops for cultural heritage¹. Beneficiaries have also reported more transcendental impacts of engaging with the Care System, where women have stated their appreciation for the amount of time they have gained, their increased visibility within society and the new friendships they have established with other caregivers – and thus they have developed a strong co-ownership attitude towards the system. Entry and exit surveys as well as preliminary impact monitoring assessments have been conducted, with estimated results projecting that the Care Blocks system will reach 1 million beneficiaries by the end of 2024.

Critically, the initiative has placed women at the centre of Bogotá's planning and transformation for the next 15 years by making care a core principle integrated into the Urban Master Plan; the first time that the city's master plan has used a gender sensitive approach to territorial planning. Consequently, the system is

building equity and increasing urban safety, promoting a new model of feminist urbanism that hinges around planning for women, and that adopts new technology and data methods to iterate its service design and implementation. Working in close collaboration with Bogotá's innovation lab, Care Blocks have also helped to streamline and improve the registration process of caregivers so that they can seamlessly access the full range of services. They aim to enhance citizen experience by simplifying data inputting and registration processes that will produce a more robust data system for decision-making and service delivery purposes in the Care Blocks according to the specific characteristics of individuals in need. As a replicable initiative when implemented flexibly, the Care System has been deployed in Ciudad Bolívar, Venezuela and San Pedro Garza García, Mexico, see Figure 3.15. Bogotá has also received requests to provide technical advice on the implementation of Care Systems from cities including Medellín, Cartagena and Cali; the Colombian national government; and additional nations such as Argentina, Chile, the Dominican Republic and Peru.



Source: City of Bogotá. Latin America's First Care Block Starts in Ciudad Bolívar. <https://bogota.gov.co/en/international/latin-americas-first-care-block-starts-ciudad-bolivar>

Figure 3.15 The first Care Block in Ciudad Bolívar, Venezuela with dedicated space for children

¹ OECD, (2020). Overview of gender equality in Colombia. In *Gender Equality in Colombia Access to Justice and Politics at the Local Level*. OECD Publishing, Paris.

Reference experiences

1. Promote flexibility and experimentation in service and infrastructure delivery

Urban innovation is a complex process that rarely follows a one size fits all formula. Bogotá has showcased the benefit of taking pragmatic approaches towards innovation in the city, in which prototypes within the Care System are designed and tested at

pace to generate data, learn and improve, and retry if needed. Such an approach has provided Bogotá with a number of benefits and has allowed the scheme to scale quickly. Cities globally can learn from innovation used in the Care System, not just in the design, but also how Bogotá has used support through cooperation and partnerships at individual and organizational levels, see Figure 3.16.



Source: City of Bogotá – District System of Care, (2023). <https://manzanasdelcuidado.gov.co/>

Figure 3.16 “Today I feel like I have time for myself thanks to Care Apple. All the services are very good. Having your laundry done for you is a great benefit because you don’t have to be scrubbing at a laundromat. The fact that they provide training for you to study and complete your primary or secondary education is another wonderful benefit. Also, the relationships among colleagues, getting to know different people, and learning to share are important because when you live in isolation, you don’t share,” Claudia Pineda

2. Develop strategies to shift fundamental perceptions and attitudes on care work across urban societies

Where gender norms are deep-rooted within Colombian society, the Care System works to not only provide key services and infrastructure to relieve the structural inequalities of care work for women, but also transform cultural biases. The initiative evens out the distribution of care for both men and women, and components such as the Care School for Men provides courses in which men can acquire skills in care work and understand it as a dedicated and worthy responsibility. Where reacting to short-term policy cycles makes sustaining real change over the long-term challenging, institutionalizing transformative change from the design of programmes to their implementation and evaluation will help promote more sustainable long-term transitions.

potential to change this. Where gender is rarely considered in the provision and distribution of services in the city, applying a gender perspective into urban social policies and programmes is essential to ensure urban futures are equitable for both women and girls. The Care System reinforces the critical value of considering gender in the planning and design of urban policies, particularly in respect to the value and distribution of care work, and necessitates the integration of the SDGs into the planning of the city.

3. Place caregivers and women at the centre of service delivery

Care work is a largely neglected field within modern society, yet as Bogotá’s Care System has highlighted, bold and transformative action has considerable

Beirut, Lebanon Public Works’ Housing Monitor: promoting housing rights and building socio-spatial equity for vulnerable communities

Case background

Located at the crossroads of Asia, Africa and Europe, the Lebanese capital Beirut was widely considered the most thoroughly cosmopolitan city in the Middle East

prior to 1975, until 15 years of civil war ravaged most parts of the city. Reconstruction began in 1990 and the city is now home to a population of over 2 million. At the national level, rent control policies were in place until the end of the civil war. These old agreements have continued at the low rates, disincentivizing landlords from maintaining buildings to any reasonable standard. According to housing analysts, new agreements signed in the free-market economy with no caps have caused mass gentrification. In addition,

a law introduced in 2017 allowed property owners, predominantly in Beirut and its suburbs, to gradually increase rental prices forcing many low-income families to move out of the city¹.

Housing injustice is thus now a growing problem in Lebanon, in which existing housing policy provides tenants with minimal protection, see Figure 3.17. Over 50 percent of Beirut's population lack housing security, where weak tenure, national economic collapse and



Source: World Habitat Awards, 2021. Housing Monitor: Monitoring and Advocating the Right to Housing for Vulnerable Communities. <https://world-habitat.org/world-habitat-awards/winners-and-finalists/housing-monitor-monitoring-and-advocating-the-right-to-housing-for-vulnerable-communities/#award-content>

Figure 3.17 Residents and colleagues work collaboratively to tackle housing justice issues

¹ City of Bogotá – District System of Care, (2023). <https://manzanasdelcuidado.gov.co/>.

inflation, and the Beirut port explosion in August 2020 have further exacerbated the issue, leaving low-income renters prone to poor living conditions, increasing rental prices and illegal evictions. The absence of adequate land and housing policies has incentivized property speculation, which along with the converging issues of financialization, widespread building demolition, neglected building maintenance, high vacancy rates and abandoned buildings have created poor housing conditions. In addition, government interventions that favour exclusive urban development, population displacement and an accelerating rate of evictions and marginalization have further led to derelict urban and social fabric, increased informality and poor conditions for residents.

Faced with such housing dynamics, a large proportion of Lebanese citizens, refugees and migrant workers therefore have no choice other than to live in dismal conditions. Following Beirut's port blast, eviction threats and rent prices increased substantially as owners in impacted areas leveraged NGO reconstruction funding to repair and upgrade their properties. Due to a lack of monitoring and reporting, poor documentation on housing rights violations has made room for bad practice by some landlords and private housing companies. These landlords have threatened eviction whilst engaging in arbitrary actions such as forced entry, discrimination and cutting off basic supplies. Reports of threats and evictions are largely concentrated in marginalized areas with low-quality living conditions where many refugees and vulnerable groups are situated. With few channels through which to call for accountability and equitable housing rights, residents have resorted to street protests to demand change on this substantial issue.

To address Beirut's unprecedented housing challenges, Public Works Studio (PWS), a multidisciplinary research and design studio established in 2012, developed Housing Monitor. Predominantly operational in Beirut, Housing Monitor serves as an interactive online tool which, along with a telephone hotline, is used by residents to report on housing vulnerabilities and eviction threats. Where PWS engages with a multitude of urban public issues in Lebanon, the tool works in line with the company's belief that architects, designers and planners should act on the political and social

dimensions of their work.

Implementation process

1. Leveraging the Housing Monitor tool to provide data insights to understand the landscape of housing at the city level

First launched to map evictions across seven neighbourhoods in Beirut, the Housing Monitor platform consolidates research, builds advocacy and proposes alternative solutions to accelerate the right to adequate housing in Lebanon. As a unique tool, it seeks to identify a comprehensive approach to housing – understanding it not just as shelter but as something that also encapsulates social networks and provides additional resources outside that of which the neighbourhood environment offers alone. The tool seeks to politicize the converging processes exacerbating housing insecurity by understanding their overlap and connecting them to housing narratives that document threats of displacement, harassment, inadequate housing conditions and dispossession. To assess these elements, Housing Monitor integrates several map layers including evictions, abandoned and demolished buildings, new construction and property ownerships, see Figure 3.18. The tool also reads neighbourhood histories and housing narratives, which in combination with map layers are overlapped with parameters such as building permits, property prices and rental prices to inform housing policy. To supplement the Housing Monitor tool, PWS offers tailored social and legal services, mobilizes tenants and identifies trends in housing injustices to advocate for policy reform as a member of the National Housing Coalition. PWS therefore helps to empower marginalized, low-income urban residents to respond to housing discrimination and injustices where a lack of data perpetuates ongoing corruption, inadequate planning and the further marginalization of already disadvantaged groups. It actively works to promote socially inclusive and sustainable spaces.

Critically, Housing Monitor tracks housing trajectories and unpacks forces of displacement assessing how Lebanon's legal framework and economy aggravates socio-spatial injustice, reduces access to resources and space, disrupts livelihoods and communities, and



Source: Public Works Studio. Housing Monitor. <https://publicworksstudio.com/en/housing-monitor/>

Figure 3.18 Data insights and map layers of evictions across Beirut

impacts the environment. In addition, the platform curates focused strategies to identify barriers to housing delivery and to help build responsiveness to housing needs at the local level. Housing Monitor also actively promotes inclusive housing responses, recognizing the failure of the market to produce

fair and equitable housing by focusing efforts on preventing inequalities facing the elderly, tenants and socioeconomically disadvantaged residents. The platform affords 10 different reporting classifications including a specialized emergency reporting channel for the city dwellers impacted by the Beirut port

blast. Via collaborations and partnerships, Housing Monitor is structured to document ongoing housing transformations and disseminate research findings through a variety of forms for a variety of target audiences. It is also designed to: campaign for the right to housing; mobilize to evolve jurisprudence on housing rights; establish diversified affordable housing programmes and associated planning tools; advocate for institutional reform; and influence housing debates and policies. Resident associations, coalitions and partnerships with organizations including Legal Agenda, Anti-Racism Movement and the Lebanese Union for People with Physical Disabilities, create channels via which people can demand their housing rights.

As of January 2020, Housing Monitor received and reviewed 603 housing violation and eviction threat reports, of which 472 were responded to with direct service intervention. This included: 184 consultations and legal tips (104 with migrant domestic workers); 150 field visits including monitoring and landlord negotiations with migrants; the prevention of 92 evictions (with other cases underway); and the successful referral of five households to renovation services and 131 to social support services¹. Subsequently, from May 2021 to February 2022, the Housing Monitor tracked 148 housing threats affecting 606 people including 275 children under the age of 18, 91 women living alone or with their children, 23 elderly men and women, 7 people with disabilities and 2 LGBTQI members².

Following the port blast, PWS recognized the lack of resident voices throughout the repair and reconstruction process leading to the development of the Association of Residents of the Neighbourhoods Affected by the 4th August Explosion, which consists of nine committees representative of seven different neighbourhoods and two minority groups of migrants

and refugees. Where such groups comprise the most vulnerable portion of society in securing housing rights, the tool has thus had enormous impact on making Lebanon's housing crisis visible where otherwise evictions and housing injustices would predominantly go unnoticed.

2. Acquiring diversified project funding and expanding project reach through publicity and promotion

As a novel initiative, the development of the project including its operational set-up was funded by USD 33,500 from the Relief Centre with the annual cost at USD 80,000 to continue monitoring. Field and reporting operations is USD 80,000. Of this sum, USD 50,000 is afforded to data management, casework, site visits, hotline operators and legal services; USD 15,000 to develop data analysis as well as legal and policy reports; and the final USD 15,000 dedicated to communications work². Following COVID-19 and the Beirut port explosion, project operations were jointly sustained in 2021 through funding from the Ford Foundation (USD 30,000), Heinrich-Böll-Foundation (HBS) (USD 27,750) and Medico International (USD 25,050). PWS has since developed a fundraising strategy to engage more donors, preferring to work with multiple funders providing small grants as opposed to the sole reliance on one donor entity. In 2022, the project was sustained by continuous funding from Medico International, Foundation de France and Legal Agenda.

As a novel initiative and the first of its kind in Lebanon, Housing Monitor is empowering tenants through direct, grassroots reporting. Through a community-centred approach, it is raising awareness on housing legal matters, whilst mobilizing local communities to advocate for more equitable housing through policy reform, see Figure 3.19. In this context, the project's multi-disciplinary approach enables the development of sustainable long-term housing solutions, preventing

1 World Habitat Awards, 2021. Housing Monitor: Monitoring and Advocating the Right to Housing for Vulnerable Communities. <https://worldhabitat.org/world-habitat-awards/winners-and-finalists/housing-monitor-monitoring-and-advocating-the-right-to-housing-for-vulnerablecommunities/#award-content>.

2 Housing Monitor, (2022). May 2021–February 2022. The housing crisis exacerbates: who pays the price? <https://housingmonitor.org/en/content/may-2021-february-2022-housing-crisis-exacerbates-who-pays-price>.



Source: World Habitat Awards, 2021. Housing Monitor: Monitoring and Advocating the Right to Housing for Vulnerable Communities. <https://worldhabitat.org/world-habitat-awards/winners-and-finalists/housing-monitor-monitoring-and-advocating-the-right-to-housing-for-vulnerablecommunities/#award-content>

Figure 3.19 As a continuation of studies undertaken by Public Works Studio, “We are the Heritage: Housing Narratives” exploration tours were conducted in several neighbourhoods led by young women and men from vulnerable neighbourhoods

evictions and injustices to marginalized social groups. In 2023, PWS has sought to expand the scope of Housing Monitor activities as part of a project entitled Monitoring, Reporting, Confronting Injustice on Housing and Land Rights in Lebanon funded by The United Nations Democracy Fund (2023–2025). In addition to its ongoing operations, PWS aims to expand the work of Housing Monitor to the other two cities: Tripoli in 2023 and an additional city in 2024. They will widen the circulation of knowledge via training workshops targeted to specific groups of individuals and community-based organizations. The knowledge produced from periodic reports will be used to draft propositions for a reform agenda that promotes the right to housing which will also result in issuing and filing annual reports to international agencies on the extent to which the Lebanese state is violating housing rights. These constitute an innovative tool with which

they will be soliciting international pressure to shed light on local problems.

Reference experiences

Promote policy that empowers the most marginalized residents to build equitable housing models and spatial justice in the city

Housing Monitor is tackling social inequity head on in Beirut, shifting power away from developers and landlords and back into the hands of tenants who are frequently overlooked, marginalized and systematically abused. As an online platform, Housing Monitor is not only a highly accessible tool but also one that is firmly placed within the public domain, providing those who live in poor and inadequate housing conditions the opportunity to raise issues, mobilize and connect to increase security for some of the most vulnerable residents in the city. In addition to improving housing conditions, increasing affordability and enhancing security of tenure, tools such as Housing Monitor that work towards housing policy reform targeting vulnerable groups can also help to revitalize neighbourhoods, promote sustainability and more inclusive neighbourhoods, whilst also empower residents to actively participate in shaping and improving their local communities. To create spatially just and equitable cities and municipalities, it is important for local governments and urban actors to develop means by which marginalized residents can access adequate housing and have their voices heard towards any living injustices. As the Housing Monitor platform demonstrates throughout Beirut and wider Lebanon, the impact of monitoring tools can be seen as a highly effective integrated solutions to assess and track existing housing conditions and guide policy development.

Understand the value of integrated databases to advance sustainable housing development

As a quantitative tool to assess housing, the Housing Monitor platform allows for greater data-driven decision-making in housing policy. The potential to integrate multiple layers of data provides urban policymakers with valuable insights into the existing state of housing, a component that local governments can leverage to advance sustainable urban development. Dedicated databases can help municipalities to better identify housing disparities and

needs within communities by providing key insights via both quantitative, qualitative and spatial data, and thus shape more effective policy responses. It is important for cities to recognize the value of data in responding to housing crises, monitoring elements such as rental prices and vacancy rates, to evictions and building construction and demolition, to provide a comprehensive assessment of housing within cities and communities.

Leverage partnerships and collaborations to enhance action on legislation and policy reform

Establishing partnerships and collaborating with partners has been key to the success of Housing Monitor. Where Housing Monitor collects data from PWS-led research workshops, architecture and urbanism students as well as researchers and research centres, developing networks has been pivotal to maximize the quantity and quality of data available. Similarly, partnerships with the National Committee to Protect the Right to Housing and Tenants Rights and the Lebanese Physical Handicapped Union have been instrumental in helping to mobilize and organize communities at the neighbourhood level where the deployment of networks of social workers has assisted in the data collection process whilst also creating a bridge between local citizens and Housing Monitor. The creation of partnerships with legal experts, urbanists and economics was also essential to develop planning tools and new housing programmes, advocate for change in existing housing laws and scale up neighbourhood-based approaches for alternative housing solutions. Accordingly, the initiative reiterates the importance of cooperation and partnership building, both with external entities and local communities to catalyse meaningful long-term transformation. In this sense, such collaboration can be understood as a key component to instigate for socially just housing and more inclusive living environments.

Policy suggestions

In the social context, finance is not only commercially valuable, but contained within the social process.

Viewed from the perspective of sustainable development, the integration of finance and resources stems from and should also serve societies themselves. In this chapter, we see that social value is presented and innovated in the form of financialization. As far as urban governance is concerned, it is important for financing capabilities generated in urban societies to be inherited and carried forward in an institutional manner. It is evident that where financial innovation is applied to social development within cities, this can help to cultivate thriving urban communities, and as such unlock more prosperous urban futures for all. Effective and innovative financing and funding will enable cities to break limitations and fragmentations, and enhance social prosperity. Echoing the introduction, the following policy recommendations are formulated through the lens of concept, application and effect.

1. At the conceptual level, it is important for governments to pay attention to the concept of social capital and recognize financial symbols in social innovation

Social financing requires transparency which can be achieved by visualizing social value through financial symbols. In the case of Colorado in the United States of America, the density and frequency of interactions among community members are manifestations of their social capital, and their financial value can be more evident through indexation. In the special column of China's Shanghai Metaverse Community, social value is frozen in the form of digital badges through NFT technology. In these cases, social-level indicators and financial symbols need their respective positions and functions in governance policies, and "being seen" is the starting point for social capital to play its role.

2. At the application level, policies should encourage cross-sector linkage and promote cross-platform information exchange and cooperation

In the case of China's Shanghai Xin-tiandi of Charity and Voluntary Services Park, social capital flows across borders both vertically and horizontally. At the vertical level, public welfare resources can sink from the city level to the neighbourhood level, breaking the level restrictions. At the horizontal level, public welfare parks allow social capital to span physical and social spaces, and cyberspace. While the platform economy in

business logic is facing information barriers, financing innovation in social logic can break platform barriers. When social capital can be condensed into financial symbols, crossover governance becomes possible.

3. At the effect level, finance should return to the value of human ecology, and embrace innovation with an experimental attitude at the institutional level

In the case of Bogota, social capital directly enhances women's status. In the case of Beirut, innovative data tools improved housing conditions for those experiencing tenancy difficulties. And in the case of the

Shanghai Xin-tiandi of Charity and Voluntary Services Park in China, green finance is becoming the main carrier of social capital. All these cases illustrate that financialization cannot stop at symbols themselves but return to human ecology in the real world. In the face of financial applications and innovations in the social field, relevant social policies should have an experimental attitude to improve inclusiveness. When targeting human ecology, financial applications become more real and diverse which means smaller innovation risks and richer innovation forms.

Chapter 4

Environment: green, ecologically vibrant and resilient cities



Introduction¹

Constructing environmentally sustainable and disaster-resilient cities and human settlements is paramount in light of the rapid onset of climate change, increased frequency and intensity of natural disasters, and widespread environmental degradation. With regard to the urban ecological environment, creating a green, safe, low-carbon, resilient and vibrant living environment is a shared goal that requires collective efforts. To achieve this, urban areas must deploy innovative and committed development strategies. The four representative cases in this chapter provide valuable experiences from exemplar initiatives that are working to create ecologically sustainable cities and communities, exploring aspects of ecological vitality, safety resilience, disaster risk reduction and green low-carbon measures.

The first case features the Wanli Community in Shanghai, China which has undergone continuous changes over the last 25 years, transforming itself from an underdeveloped suburban village with inadequate public service facilities into a vibrant community with a renewed ecological environment in which people live and work in peace and harmony. This case is followed by a column showcasing effective measures adopted in the comprehensive development of Binfen Community in Hangzhou, China, which is one of the exemplary community development models recognized by the Ministry of Housing and Urban-Rural Development of the People's Republic of China. The second case features the work of UrbaSEN and the Senegalese Federation of Inhabitants in Dakar, Senegal highlighting their implementation of flood risk reduction strategies. This case demonstrates how local community-led approaches in flood management are reducing risks in the city's most vulnerable communities, building urban resilience. Thirdly in Fortaleza, Brazil the city government has actively promoted the roll out of an urban micro parks initiative. The integration of micro parks is enabling the city to transform many degraded and underutilized plots of land in neglected and underserved communities, promoting improved direct interaction between citizens and nature, building new public spaces and improving urban environmental quality. And in the fourth case in the Rotterdam region in the Kingdom of the Netherlands, local government is actively promoting the Rotterdam Energy Approach and Planning method – a core strategy for maximizing energy efficiency in urban buildings and public spaces, reducing energy demand, reusing wasted energy and increasing the use of renewable energy.

Case studies

Shanghai, China The transition of Wanli, Putuo: an ecological and dynamic community for living and working

Case background

Grassroots governance is the foundation of national

government and involves coordinating the planning and implementation of actions in towns and streets, urban and rural communities. It is considered a fundamental factor for achieving modernization of the national governance system and overall governance capabilities. China has actively explored grassroots governance in communities and proposed the concept of co-construction, co-governance and sharing on social matters. This approach advocates for collective participation in social construction and governance, and the benefits of governance outcomes.

¹ This chapter was jointly completed by Tongji University, the Shanghai Sustainable Development Research Society, the Shanghai Municipal Engineering Design Institute and UN-Habitat. Core team members included: Chen Haiyun, Zhong Lv, Sun Xiuli, Qin Yu, Zhou Hailu, Hu Qianting, Zhao Xiyao and Wang Zhirui.

As an international metropolis with a population of 25 million, Shanghai has become China's centre for international economy, finance, trade, shipping and technological innovation. It also plays an active role in grassroots social leadership, promoting reform and innovation in community governance. Twenty-five years ago, Wanli was a suburban village containing a mix of farmers' residences, factory warehouses and farmland. The water was severely polluted, transportation was inconvenient and there were insufficient public services such as schools, hospitals and shops. On 17 June 1997, the development of Wanli Community officially commenced as one of four demonstration areas selected by the Shanghai Municipal Government under their Shared Community Project plan. Wanli Community spans across 216 hectares with a total building area of 2.57 million m². The planned number of households is 20,000 accommodating a population of 60,000. Residential

buildings have been cleverly integrated with the area's natural rivers resulting in a unique water landscape.

Wanli has undergone a tremendous transformation. Following the principles of innovation, green development, coordination, openness and sharing, Wanli Community has become a vibrant settlement in a clean ecological environment where people live and work in peace and harmony, and neighbours are friendly and supportive, see Figure 4.1. In 2005, Wanli Community won the United Nations International Week of Science and Peace Habitat Contribution Award, and in 2006 it was awarded the United Nations International Week of Science and Peace Ecological Environmental Residence Gold Award. The success of this development has made a significant contribution to the implementation of the United Nations 2030 Sustainable Development Goals, particularly in the area of sustainable cities and communities. It also provides



Source: Wanli Subdistrict Office

Figure 4.1 Night view of a street in Wanli Community

important references for the development of similar communities worldwide.

Implementation process

Wanli has developed from a rural area into a thriving community. Planning and design of the area was undertaken by a French firm with regional community

construction carried out by the Zhonghuan Group. As different stages of the urban transformation and construction have progressed, the development goals and paths have become increasingly clear.

In response to Shanghai Municipal Committee's exploration of new approaches to grassroots governance in super-sized cities, Wanli Street was designated in December 2014 to be the first

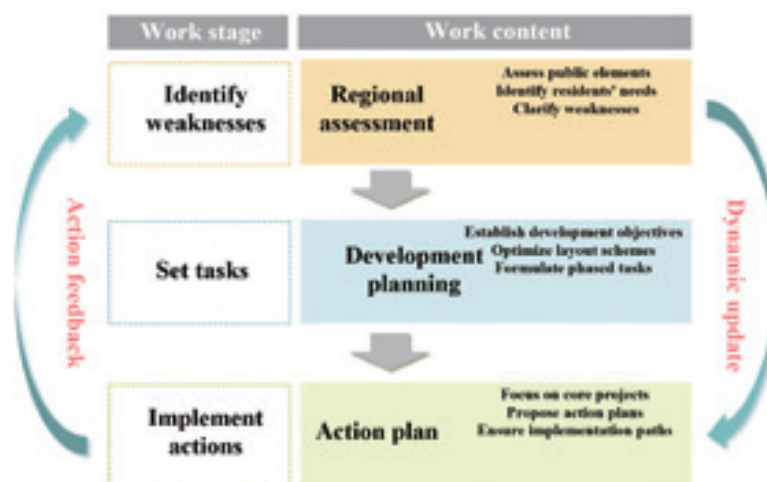
community hub based outside of a large town. The Wanli Community Development Plan was launched to implement the task and realize the aim of making the “basic management unit” of public services practical, defining the key elements of community development.

Four aspects of constructing the vibrant, ecological Wanli Community are as follows:

1. Designing a clear and well-defined technical roadmap

In 2016, Wanli Community started systematic planning with a focus on three major components – identifying weaknesses, setting tasks and implementing actions – forming a work framework of regional assessment, development planning and an action plan, as shown in Figure 4.2. Through preliminary assessments based on actual demands, needs were clearly identified

with a focus on the development of public facilities, public spaces, the transportation environment and public activities. The core focus was placed on the construction of a continuous and comfortable travel network to link public service facilities and open spaces (such as activity hubs), promoting a healthy and sustainable lifestyle, and creating a comfortable, liveable, energetic, efficient and convenient “15-minute community living circle” in which residents can access a variety of daily service facilities such as education, health care, work and leisure within a 15-minute walk (or cycle) from home. With consideration given to factors such as the urgency of demands, enthusiasm of implementing entities and ease of implementation, three major action plans were formulated based on the project list: “Home of Neighbourhood”, “Green Walk of Wanli” and “Home Festival”.



Source: Wanli Subdistrict Office

Figure 4.2 Wanli's comprehensive community plan

In the Putuo District Community Development Planning Guidelines of 2019, a proposal to achieve 15-minute community living circles in all streets and towns was made. To achieve this goal, the positioning of the “Vibrant Community” of the Zhenru-Shiquan-Wanli area was confirmed with improvements focused on four major aspects: enhancing service capabilities, raising standards, activating spaces and improving management efficiency.

2. Promoting a detailed and in-depth regional assessment

In the preliminary preparation for community research, Wanli Community followed principles such as taking a systematic, precise and actionable approach to selecting the elements that needed evaluation, and formed a list of research elements including population characteristics, community physical space elements and residents' needs. Based on these requirements,

Wanli Community then conducted research in three forms: on-site surveys; subdistrict office forums; and online resident questionnaires. By conducting a cross-analysis of the three aspects that residents were least satisfied with through the comprehensive questionnaires, Wanli Community identified the key concerns shared by residents such as difficulties in parking, limited activity spaces and medical facility needs. Through forum discussions with the subdistrict office, neighbourhood committees, and district planning and construction bureau, the community planning team identified the main issues in the current development and management of the 15-minute community living circle such as funding support, inventory of building spaces and identification of idle land. A regional assessment of the current community development was then conducted and an evaluation report drafted on the relationship between resources – such as community public service facilities, public spaces and the needs of residents according to the focal points of the community planning.

3. Developing practical and feasible planning strategies

Wanli Community has become a vibrant, distinctive, thriving community. To further promote its development and continue building a comfortable, liveable, healthy, energetic, efficient and convenient 15-minute community living circle, Wanli Community has proposed the Wanli New Journey of Urban Community Renewal plan based on the results of research on residents' needs and the existing community's shortcomings. The plan aims to create "One Blueprint, Two Pictures and Three Sets of Mechanisms".

The first goal is to emulate the Two Pictures. The first image used for inspiration is *A Thousand Li of Rivers and Mountains*¹, a painting which portrays a beautiful natural ecological landscape where blue hills and green streams intertwine. By leveraging Wanli Community's natural resources, a 6.2 km ring-shaped water network, including the Dachangpu-Henggang-Yangjiaqiao transport road, and six vertical green belts with a total area of 25 hectares have been created. The second

inspiration, the painting *Along the River During the Qingming Festival*², depicts a beautiful life scene that is perfect in every way.

Two areas – Xincun Road and Fuping Road – have been identified as the ideal areas for community development, as shown in Figure 4.3. Taking into consideration the 600 m service radius around the rail transit station, the two orange circles are strategically located and embedded with two boxes of specialized and basic services, ultimately forming a picturesque landscape featuring "two horizontal roads, six vertical green belts, one square city, two districts and multiple hubs". Overall, the ideal of the Two Pictures provides residents with convenient services and a comfortable living environment, accelerating the development of the 15-minute community living circle.

The second goal is to depict the One Blueprint for a better life. Wanli Community aims to achieve five preferable and 10 strategic objectives, focusing on shaping a vibrant residential community suitable for tourism, culture, health and business. In terms of tourism, the community promotes natural symbiosis through "activating green axes", "connecting blue waterways", "building characteristic streets and alleys", and "optimizing the travel experience". For residents, it encourages service sharing through "embedding diverse facilities" and "creating places for social interaction". With regard to health, it ensures a friendly environment for all ages, protecting and caring for both the elderly and the young. For businesses it enhances vibrancy and integration through "embedding entrepreneurial spaces", and for cultural activities it creates charm through "establishing art spaces" and "creating beautiful landscapes". Throughout the process of realizing this blueprint, Wanli Community continuously enhances comfort and liveability, improving residents' quality of life and sense of well-being while continuing to perfect the construction of the 15-minute community living circle, see Figures 4.4 and 4.5.

1 *A Thousand Li of Rivers and Mountains* is a famous blue-green scroll painting by Wang Ximeng (1096–1119), a Chinese painter during the Northern Song period.

2 *Along the River During the Qingming Festival* is another famous scroll painting by the Song Dynasty painter Zhang Zeduan (1085–1145).



Source: Wanli Subdistrict Office

Figure 4.3 Development Guide Map for Wanli Community



Source: Wanli Subdistrict Office

Figure 4.4 The transformation of a street in Wanli Community



Source: Wanli Subdistrict Office

Figure 4.5 Wanli Community park

The third goal is to establish the “Three Sets of Mechanisms” for collaborative governance. Wanli Community has achieved the comprehensive top-down linkage of three departments: the district committee, district government and subdistrict office. It has constructed a professional technical platform guided by the Design Lighthouse and a legal procedural platform based on “One Map, Three Meetings” to achieve an all-process action promotion mechanism. It has also built a user-oriented community map of Collective Rules and Creation and a management-oriented Smart Putuo information platform to realize

a highly collaborative smart governance mechanism. These Three Sets of Mechanisms effectively strengthen community management and operation, improving service quality and efficiency, and providing strong support for the construction of the 15-minute community living circle.

4. Emphasizing comprehensive public participation

Wanli Community actively listens to the voices of the people and establishes comprehensive top-down linkage mechanisms as shown in table 4.1. In order to build the Wanli Community Development Plan, Wanli

Table 4.1 Wanli Community's top-down linkage mechanism

Top-down mechanism	Wanli Subdistrict Office and each neighbourhood committee	Conducting regular community surveys; Commissioning design institutions to carry out community planning; Comprehensively ensuring the relevant financial support and implementing the construction of projects.
	Community planner	Compiling a list of weaknesses and developing community development plans; Coordinating planning consultation work and promoting public participation in activities; Providing key project design teams with full-process technical support.
	Design teams for each key project	Developing implementation plans for key projects.
	Community residents	Participating in all stages of community planning formulation; Providing timely feedback and submitting relevant demands and suggestions.
	Enterprises and community organizations	Paying attention to community needs and issues, and providing corresponding resource support.

Source: Developed by the authors

Subdistrict Office conducted needs research among its 15 subordinate neighbourhood committees. Residents' satisfaction with the street environment and areas for improvement in street construction were assessed through the distribution of survey questionnaires.

During the process of promoting community management and renewal, Wanli Community has established a system consisting of a Hearing Committee, Coordination Committee and Review Committee to ensure public participation throughout the entire process, see Figure 4.6. These committees provide timely feedback on various stages of planning formulation and put forward relevant demands and suggestions. The Hearing Committee is involved in the project generation phase, where neighbourhood and business committees extensively gather public opinions during workshops to guide them in selecting projects. The Coordination Committee operates during the project implementation phase where neighbourhood and business committees collaborate during workshops to guide them in choosing specific project design schemes. The Review Committee operates during the project evaluation phase where neighbourhood and business committees collect residents' feedback and perceptions through workshops to guide them in assessing design schemes and implementation effectiveness.



Source: Wanli Subdistrict Office

Figure 4.6 Wanli Community hold a workshop with public participation

Reference experiences

1. The construction of an ecological and dynamic community requires systematic and forward-looking planning

Community governance is a complex task and efficiently advancing its progress requires employing scientific methods to establish long-term planning based on the actual situation. Wanli Community grasped the characteristics of a relatively young population structure among its residents and the status of community public facility construction. By identifying weaknesses and issues, it recognized areas in need of improvement in community construction and management, cityscape environment and public service facilities. Focusing on these three core issues, Wanli Community established three development goals and proposed five corresponding strategies, achieving comprehensive improvements in green axes, blue waterways, characteristic streets and towns, and travel experience. This has propelled local social governance to a new level and unprecedented heights.

2. Develop detailed technical roadmaps and construction drawings with a problem-oriented approach, focusing on meeting the needs of people's livelihoods. The key emphasis should be on solving the most prominent contradictions and issues

As General Secretary Xi Jinping emphasized in the twentieth Communist Party of China National Congress Report, "We must adhere to a problem-oriented approach. Problems represent the voice of the times, and answering and guiding the resolution of problems is the fundamental task of theory." In community governance, the most pressing difficulties and problems that are of great concern to the residents must be the focus of the work. The more detailed the technical roadmap and construction drawings are, the fewer engineering disputes there will be and the better the implementation effect. After conducting surveys of residents' opinions, Wanli Community discovered several specific issues such as the lack of systematic green spaces, green corridors and walkways, low openness, incomplete slow walkways and a lack of organic unity in the style and colour of the building facades within the community. Therefore, Wanli Community refined the design plans down to every street corner, taking the landscape living area

as an example. Each designated point is based on the specific location and facility foundations, accurately undertaking different functions such as enhancing the artistic atmosphere and guiding pedestrian flow. This provides dedicated support to enhance the living experience of residents.

3. Through a combination of policy support and market mechanisms, Wanli Community has been creating an ecologically dynamic community that not only addresses issues concerning liveability but also sustainable employment and business development

Sustainable human settlements and the promotion of decent and productive employment are important goals of the United Nations 2030 Sustainable Development Agenda. Wanli Community has achieved significant results in fulfilling these objectives. In terms of liveability, Wanli Community focuses on embedding diverse facilities and creating places for social interaction as its main strategies. It is committed to addressing facility shortcomings, tapping into spatial resources and enhancing service content. Through collaboration between government departments and private enterprises, projects such as the renovation of Xiangquan Road have been completed. With regard to employment, Wanli Community regularly organizes practical training and teaching to assist long-term unemployed youth in finding jobs and starting businesses. Additionally, it enhances the coordination and open sharing of entrepreneurial parks in order to broaden the parks' functions, promote interaction among entrepreneurial groups

and serve the employment needs of the surrounding population. Through the model of government and business cooperation, Wanli Community addresses the sustainability of liveability and employment, which not only enhances the community's vitality but also provides citizens with more opportunities.

4. Full-process public participation is essential. Community residents should actively participate in all stages of planning, implementation, evaluation and management to ensure that their needs are aligned with and their opinions heard. Only through this approach can sustainable community development be achieved

Public participation is an important means of safeguarding residents' rights and an essential pathway to realizing community sustainable development. Drawing on the experience of the past 25 years of community renovation, Wanli Community continuously promotes full-process public participation. It listens to public opinions on policy design and planning formulation, utilizing methods such as distributing questionnaires and organizing forums to increase residents' involvement in community governance. This has resulted in replicable, scalable experiences and achieved institutionalized, standardized and normalized autonomy and co-governance. The experience has also provided a solution to overcoming the inefficiency of the traditional government-dominated management model. It offers valuable insights and reference experience to cities and communities that are still in the rapid urbanization process.

Hangzhou, Zhejiang Binfen Community: Cross-community Joint Construction and Integrated Governance

Communities are closely related to the lives of the people, serving as the fundamental units of urban residents' lives and the basic units for urban construction and management. The quality of the community environment directly impacts the experience and quality of urban residents' lives. To meet the people's demand for a better life, the Ministry of Housing and Urban-Rural Development of the People's Republic of China aims to build

satisfactory "good communities" by focusing on serving the people, facilitating their needs, and ensuring their safety. The construction primarily emphasizes facilities for "the elderly and children" so as to address the concerns of the people. Collaborating with the relevant departments, pilot projects for comprehensive community development have been initiated to create a series of exemplary community development models.

Binfen Community is located in Xixing Subdistrict, Binjiang District, Hangzhou, Zhejiang Province, see Figure 4.7. It is comprised of three established communities: Xingmin Community, Qijiazha Community, and Shuidian Community. As one of the earliest resettlement neighborhoods in Binjiang District, the community has long been plagued by issues such as disorderly environmental conditions

and a lack of public facilities. Residents, wishing for a more comfortable living environment, improved public services, and a more convenient lifestyle, have expressed a growing demand for the transformation of the community. In response, Binfen Community has initiated a comprehensive reconstruction pilot project. The core measures include:



Source: Binfen Community, Hangzhou

Figure 4.7 Aerial View of Binfen Community in Hangzhou, Zhejiang

1. Optimal Mechanism – Enhanced Community Services.

Community co-construction is not only the convergence of administrative boundaries but also the integration of governance systems. To streamline multiple management authorities, the community has relied on Party building leadership to unite the original Party branches into a large community Party committee and implement rotational management. Simultaneously, in collaboration with surrounding co-construction units, operating units, and grassroots stations, a multi-cross collaborative operating mechanism has been established, integrating personnel

forces to enhance the level of governance.

2. Optimal Space – A More Livable Living Environment.

The resettlement neighborhoods within the colorful Binfen Community were constructed quite some time ago, leading to dilapidated facilities and a low installation rate of elevators. After the Hangzhou Municipal Construction Committee coordinated multiple departments for joint construction, they completed the installation and renovation of a series of infrastructure facilities, including water supply and drainage pipelines, car charging stations, and elevators. This has achieved the goal of comprehensive

neighborhood improvement and transformation in a single upgrade.

At the same time, Binfen Community established the core concept of "Neighbors Together" which encompasses nine major service scenarios, namely neighborhood communication, reading and learning, dining, affairs, dispute resolution, medical care, fitness, elderly care, and childcare. The aim is to provide residents with life scenario services throughout their entire lifecycle, creating a "5-minute, 15-minute life service circle."

3. Optimal Experience – Smarter and More Convenient Services.

Binfen Community uses digital leadership and the establishment of a digital platform to connect residents' life needs with community management and facilitate online communication between residents and the community to address daily life issues. The community actively improves the interconnection of the Internet of Things, utilizing digital devices for the intelligent supervision and operation of community public service facilities. This not only eliminates daily safety hazards but also makes various life scenarios better tailored to the actual needs of residents.

4. Enhanced Efficiency – More Effective Community Governance.

Binfen Community relies on the Community Service Center, integrating service processes into the "Yi Bin Ban" service window which coordinates the

handling of service matters and provides a 24/7 one-stop community service hub. It unifies community operational units, evaluating public, welfare, and commercial spaces within the community based on resident satisfaction and operational data to achieve the organic renewal of formats. Through the support of shop rent, public funds, and contributions from co-construction units, subsidies are provided for the operational expenses of public service scenarios, ensuring sustainable operation.

Xixing Subdistrict has established a comprehensive integrated law enforcement team with regularly stationed offices at various grassroots stations. They have implemented a daily rotation system and mechanisms such as "Five in One," creating multi-tiered collaborative "integrated" enforcement to comprehensively enhance community governance efficiency.

The significance of this case lies in breaking the administrative boundaries of the original community structure by establishing a joint community Party committee to achieve regional collaboration and consolidate the originally scattered small spaces in the three communities. Following unified planning, standards, construction, and operation, it has created a comprehensive community with integrated life scenarios, thereby making an in-depth exploration of a complete community creation model for cross-community collaboration and integrated governance.

Dakar region, Senegal UrbaSEN and the Senegalese Federation of Inhabitants: empowering residents in flood resilient infrastructure projects

Case background

Located on the Cap-Vert peninsular on Senegal's Atlantic coast, the capital city of Dakar has experienced rapid population growth leading to poorly controlled urban densification and informal expansion of the city's peripheries. Dakar accommodates around 1.8

million people within these unplanned suburban zones, many of which are lowland settlements vulnerable to flooding; an annual recurrence during rainy seasons since 1987. Although climate projections are struggling to converge locally, extreme events are predicted to intensify with more frequent and heavier rainfall. Flooding thus constitutes an enormous challenge and continues to hamper socioeconomic development in the Greater Dakar Region and wider Senegal, further entrenching a large share of the population into poverty. For over 30 years, certain areas of housing have been repeatedly flooded for several months

each year, forcing large swaths of the population to abandon their homes, then rebuilding them or living in hazardous conditions that pose major health risks.

Despite improvements made through state flood-control projects, persistent flood risk in Dakar's outer districts have continued to cause damage to self-built housing and public spaces, creating precarious living environments for some of the most vulnerable urban inhabitants. In recent years, flood management has garnered notably more attention on Senegal's political agenda with a range of emergency response measures provided by public authorities. Interventions such as the clearance and/or recovery of disaster areas, the construction of evacuation networks, the integration of stormwater basins, pumps and the restructuring of informal neighbourhoods have all been proposed to bolster the resilience of vulnerable neighbourhoods. State responses, however, are often delayed and inappropriate for these communities, and for women in particular. Major projects have also tended to opt for structural work instead of the integration of secondary and tertiary networks incorporated into the informal urban landscape. There remains, therefore, a lack of forward-looking collaborative efforts focused on integrated management encompassing planning, design, infrastructure implementation and capacity building to increase flood preparedness.

To alleviate risks to some of the most vulnerable communities and to effectively deliver on poverty reduction, Dakar has been promoting integrated approaches to urban planning, service delivery and infrastructure development. Developed in 2012, the Living Environment Improvement Programme for Vulnerable People in Precarious Neighbourhoods has worked to improve the quality of life and bolster the resilience of these flood prone communities. Led by communities themselves, the programme is organized by the Senegalese Federation of Inhabitants (FSH); a federation of women's savings groups, under UrbaSEN, a local NGO. Working cooperatively, the city has since experimented in co-production, connecting public and private actors with citizens to advance disaster resilient

development in a number of working-class districts.

Implementation process

Since its establishment in 2014, FSH has expanded rapidly to 570 savings groups. With 15,000 members, 96 percent of whom are women¹, participants gather savings collectively and can obtain loans from a revolving fund to carry out improvement works within their communities. As a key interlocutor of public players, FSH creates the link with local inhabitants, directing the choice of beneficiaries, the mobilization of finances and raising awareness. FSH is supported by UrbaSEN, an association comprised of 22 professionals including engineers, urban planners, architects, economists and social workers who provide technical expertise in areas such as supervising construction, and by training residents in improvement works – housing upgrades, stormwater infrastructure and wastewater management, for example.

To finance project works, UrbaSEN manages FSH's revolving fund – the principal means by which to save and take out loans for populations excluded from the formal banking system. As an integral mechanism, the fund provides microfinance to address issues of irregular or extremely low incomes, absence of land titles or the inability of many local inhabitants to provide financial guarantees. FSH supports savings groups with training in administrative and financial management, as well as the development of income-generating activities. The fund currently accrues around USD 960,000 to finance community and housing infrastructure improvement works, and accommodates a diverse range of funding sources including grants from international institutions (72.8 percent), monthly contributions from savings groups (19.5 percent), interest on loan repayments (5 percent) and solidarity loans from Swiss housing cooperatives and individuals (2.7 percent)¹. Since its establishment, the fund has provided 805 loans to members at an average sum of USD 1,445. Loans are typically paid back within 20 months after home improvement works are finalized¹. The repayment rate is 92 percent, however, in the event

¹ World Habitat Awards. UrbaSEN and the Senegalese Federation of Inhabitants, (2023). URL: https://world-habitat.org/world-habitat-awards/winners-and-finalists/urbasen-and-the-senegalese-federation-of-inhabitants__trashed/#award-content.

of repayment difficulties, instalments can be adapted to the householder's new situation. Since 2011, UrbaSEN has been supported by urbaMonde, a French-Swiss association which helps facilitate strategic development, international fundraising, reporting and networking with other global partners.

As a four-year project initiated in April 2019, UrbaSEN launched a new programme Pikine Irregular North, Guédiawaye – Integrated Management of Flood Risks (PING-GIRI) to enhance flood resilience in Dakar's peripheral communities. With a budget of € 900,000 funded by the French Agency for Development, the programme targeted five neighbourhoods highly exposed to floods: (1) Djiddah Thiaroye Kao; (2) Medina Gounass; (3) Ndiarème Limamoulaye; (4) Wakhinane Nimzatt; and (5) Yeumbeul Sud. The project aimed to strengthen flood resilience by capitalizing upon local dynamics and by empowering local communities to act on urban disaster risk management. Each stage of the project was designed to ensure community members were fully positioned to decide, negotiate and participate in project activities and decision-making. Centred around five stages co-constructed between inhabitants, municipalities and public institutions, development processes included: (1) plan and prioritize actions consistently across existing plans; (2) define the works to be carried out; (3) provide support and finance the works; (4) execute the construction of the works; and (5) manage works, clarify roles and responsibilities, define management methods and ensure their implementation.

Stakeholder involvement in territorial diagnosis and participatory planning

As a core initial step, participatory planning was undertaken in the five target municipalities to identify local challenges and prioritize appropriate interventions. Split into two rounds, the first set of workshops were theoretical involving map analysis, see Figure 4.8, whilst the subsequent round involved field analysis to locate identified challenges. Communal maps were produced ahead of the participatory planning workshops to inform the preliminary diagnostic sessions and support solution development. Composed from aerial photos taken using drones and land surveys via Open Street Map methods, the maps enabled the geolocation of lowland areas and critical



Source: https://urbasen.org/user/pages/05.archives/dossier-de-presentation/urbaSEN_FR.pdf

Figure 4.8 Local community members undertake mapping analysis during workshop sessions

flood zones, as well as existing sanitation works and flood-degraded housing. In addition, digital terrain models and watershed mapping were generated where drones had made it possible to determine altimetry. Verification of water volumes to be treated as well as the dimensioning of building and water network structures were also possible from the research.

Subsequent planning workshops invited multiple stakeholders including neighbourhood associations, FHS member groups, neighbourhood delegates, religious and customary authorities as well as personnel from the municipality. By placing local community members at the heart of the process in identifying and managing floods, this helped to mobilize people collectively, providing them with the power to identify problems and propose solutions to enhance living conditions in their local neighbourhood. Within plenary sessions, urban walks were conducted to confirm and correlate the identification of flood prone structures and areas identified in maps, in which municipal perimeters were divided zonally with sub-groups selected to assess each one. GPS devices enabled key areas to be recorded to allow for spatial analysis and visualization whereby a georeferenced database helped create an inventory to secure information. UrbaSEN focused predominantly on training young residents and local public servants to carry out data collection. Detailed flood management studies were then undertaken to align desired stormwater management infrastructure components

with local urban environmental conditions, with the focus placed on how to best direct sub-catchment water flows in line with Dakar's drainage plan.

Development of technical flood-management solutions

Following the identification of areas for intervention within target communities, solutions were proposed by both local community members and technical teams. The project tested a number of innovative flood management solutions based on infiltration, reprofiling and upstream protection for neighbourhoods. Proposed solutions were rendered in 3D to facilitate restitution and validation with beneficiaries and the municipality. With the support of an international design office specializing in alternative rainwater management, the solutions were then validated by professionals within their respective contexts. The final infrastructure construction therefore followed an evolutionary logic from design through to implementation as devised during the participatory workshops.

Following confirmation of the desired technical interventions, women were trained to supervise the work and local craftsmen were selected to support the construction of flood management infrastructure. By hiring local workers, their skills were expanded therefore increasing the possibility to replicate works and minimize construction costs. Measures included integrated water stops designed to help divert stormwater away from flooded urban areas towards outlets such as the gully grids and stations, and filter sumps were built to limit wastewater discharge. Permeable paving was also installed to increase surface infiltration, which in combination with shaped concrete channels was essential to improve drainage efficiency whilst protecting the foundations of surrounding houses by preventing erosion. Concluded in March 2023, Ping-Giri has since delivered multiple benefits that have transformed the adaptive capacity and resilience of the local districts involved. The introduction of adequate drainage systems and the regulation of surface water flow helps to reduce flood risk, whilst education programmes have helped to reduce behaviours that have a detrimental impact on

the environment such as groundwater contamination, wetland erosion and waste dumping. The curation of planted public spaces, and the inclusion of sanitation facilities and improved waste management have also improved hygiene and the health of local residents.

Co-financing public works through a semi-collective approach

The revolving fund for urban renewal has enabled inhabitants to co-finance their own work for housing or community projects within the project. The system of co-financing has worked to reflect the principle of co-design in which local inhabitants and the municipality finance works equally. The revolving fund is monitored via a database in which each loan is recorded and each project stage is logged through to completion. The project paid a € 90,000 endowment into the revolving fund in 2019. Three years later, loans granted for community and individual works were valued at over € 211,000. The fund has allowed for improvements to be made to local communities such as the integration of flood adaptation measures for housing as well as the incorporation of small public facilities, for example, drains, paving, buffer basins in recreational spaces and permeable green space. The revolving loan fund system has also helped to engage local inhabitants making them feel more involved in project works and encouraging a greater sense of ownership among beneficiary groups, highlighting its potential as an effective tool to mobilize financial resources for the construction of individual and public facilities.

Transfer and expansion of the programme

Several districts in the greater Dakar region have undergone successful transformation from additional projects. Through the Living Environment Improvement Programme for Vulnerable People in Precarious Neighbourhoods, 800 housing improvement or reconstruction projects have been carried out to date with loans of up to USD 1,600 from the FSH's revolving fund, reducing flood vulnerability and improving the quality of life for residents¹. In total, over 20,000 people have benefitted directly from projects, 8,000 people have had their homes upgraded and over 600

¹ World Habitat Awards. UrbaSEN and the Senegalese Federation of Inhabitants, (2023). URL: https://world-habitat.org/world-habitat-awards/winners-and-finalists/urbasen-and-the-senegalese-federation-of-inhabitants__trashed/#award-content.

craftspeople have been trained. In cooperation with the National Agency for Civil Aviation and Meteorology, a flood early-warning system has also been established which issues SMS alerts to residents before heavy rainstorms.

Since 2019, the Cité-FSH greenfield project has been developed in partnership with future residents, FSH and the UrbaSEN and urbaMonde technical teams. As an urban and architectural flagship programme, it has worked to construct an eco-district accommodating 140 houses in the commune of Diender on Dakar's outskirts in which facilities are built from ecological materials, facilitating an integrated urban district adapted to climate change.

At the regional level, UrbaSEN and FSH have advised partners including GRDR in Guinea Bissau and Yaam Solidarité in Burkina Faso to experiment with the development model as rolled out in Dakar. Strategic tools such as drone mapping, participatory data collection and revolving fund financing are also being adopted in other areas. To solidify the transfer and expansion of these practices, a regional network of resident confederations of the member countries of the West African Economic and Monetary Union are forming to strengthen cooperation and peer-to-peer exchange in 2023. Accordingly, with the support of UrbaSEN, FSH will serve as an integral player in urban development and will continue to grow as more members join savings groups with the common goal to improve resilience to climate change and quality of life in the suburbs of Senegalese cities.

Reference experiences

Understand urban resilience building as a collaborative process of co-designing and co-building

The work of UrbaSEN and FSH reiterates the importance of building disaster resilience via a cooperative and dialogue-based approach. Collaborative efforts in flood mitigation have highlighted the benefits of actively engaging local inhabitants across all phases of project implementation to effectively build the capacity of local communities. Encouraging inclusive dialogue has helped to transfer education, knowledge and key

skills to local community members. The process of co-design between technical experts and local residents as exemplified through workshops and diagnostic stages has helped to integrate a diverse range of perspectives into solution development and decision-making, thus stimulating innovation and increasing the quality of project outputs within local contexts. In addition, where local stakeholders were directly involved in the implementation and construction of flood relief measures, this process of co-building has equipped local male community members with practical construction skills and local women with project management skills, contributing to a more self-sustaining development process. Critically, the process of co-development can help strengthen relationships among stakeholders, boost engagement in local development and foster longer-term sustainability. By prioritizing marginalized communities in project implementation, cities can therefore promote more inclusive and equity-centred approaches to resilience building.

Integrated approaches to flood management are essential in informal settlements

Implementing integrated flood management in informal settlements requires a comprehensive approach that considers the unique characteristics of the area. Facing the complex converging factors increasing susceptibility to disasters, risk assessments in Dakar's informal communities are vital to deliver informed and impactful flood management solutions. Integrated strategies that combine urban planning with stormwater management considering elements such as the urban landscape, buildings, streets, open spaces and existing drainage infrastructure are key to increase the resilience and sustainability of vulnerable urban areas. Where informal settlements are typically characterized by poor drainage, inadequate housing and limited access to services, integrated and holistic approaches can help to tackle multiple challenges simultaneously. It is important for cities to acknowledge the heightened risk of flooding in such areas and formulate sensitive responses accordingly, understanding the nuanced requirement across infrastructure and services delivery, education and awareness-raising to improve urban environmental quality and climate resilience.

Fortaleza, Brazil

The Urban Micro Parks initiative: naturalizing degraded land in vulnerable communities

Case background

Situated in the north-east, the city of Fortaleza has experienced accelerated levels of urban growth marked by social inequalities. More than 143,000 families live in extreme poverty with children the most vulnerable. Converging issues of socioeconomic and urban inequality, exacerbated by the COVID-19 pandemic, heightened the issue of a lack of spatial equity whereby low-income families in extremely vulnerable situations have lacked access to basic services and public spaces. Between 2004 to 2014, natural areas in Fortaleza decreased from 35.6 to 21 percent, equivalent to 6.42m² of green space per inhabitant – half of the World Health Organization's recommendation¹. Some 389 non-urbanized parcels of land are, however, present within the municipal area – typically neglected and unused. With an emerging gap between children and access to nature, this has increased health problems and produced degraded, stigmatized public spaces prone to waste disposal, violence and irregular occupation. The impact of a lack of natural space is particularly evident for children leading to an increased prevalence of obesity, hyperactivity, attention deficit and reduced mobility.

Since the beginning of the COVID-19 pandemic, outdoor spaces have been identified as strategic, low-risk areas for the safe return of community life. In the context of the city where access to public areas of recreation is severely restricted, urban micro parks have offered low-cost, easily implementable alternatives to expand benefits to vulnerable, densely populated areas. The integration of micro parks has enabled Fortaleza to transform its many parcels of degraded, under-used land and has offered a solution to issues of uncertainty, disruption and crisis by opening up spaces in vulnerable areas that facilitate community life and direct contact with nature.

Implementation process

The city launched the Urban Micro Parks programme in 2020 through the Innovation Lab of the Foundation of Science, Technology and Innovation; the Municipal Department of Urbanism and the Environment; and the Urban Planning and Landscaping Authority in partnership with the Urban 95 Network, a global initiative seeking to include the perspective of children and caregivers in urban planning and programmes. As a public policy addressing multiple issues, the initiative has combined two ambitions: to recover degraded parcels of land and to construct new public spaces in which people can be in close proximity to nature. Proposed by the Alana Institute, a partner of the municipality through the Urban 95 network, the concept has involved the naturalization of parks using features such as terrain topography, wood and vegetation to generate attractive, high-quality spaces for socializing and play. Expanding a green network throughout the city, the parks also offer key space for local community members and children in particular, whilst increasing local environmental sustainability and resilience.

Expanding a city-wide green network through micro park development

Selected as pilot locations, the José Leon and Seu Zequinha micro parks in Cidade dos Funcionários and Barra do Ceará respectively, were the first areas to undergo transformation in November 2020 and October 2021. See Figures 4.9 to Figure 4.11. Both sites were previously degraded areas exposed to the dumping of hazardous construction waste with the larger Seu Zequinha area also accommodating natural water elements. Using both natural and traditional features including water, play areas, outdoor gyms, permeable areas, trees and pruned wood, these two sites have been transformed into new quality green spaces, and have helped initiate a greater connection between local people and nature. It is estimated that up to 18,500 low-income residents, 60 percent of whom are non-white, have benefited from the implementation of the two parks to date². In contrast to their previous states, the parks now fulfil the roles of improving the microclimates and the co-existence

1 AIPH, (2022). Addressing the urban challenge. URL: <https://aiph.org/green-city/guidelines/case-studies/fortaleza-urban-challenge/>.

2 AIPH, (2022). Fortaleza, Brazil. Initiative: Transforming degraded land into Urban Micro Parks. URL: <https://aiph.org/green-city-case-studies/fortaleza-brazil/#Implementation,%20Impact%20and%20Replicability>.



Source: Photo by Fortazela City Hall

Figure 4.9 José Leon micro park before and after transformation



Source: AIPH, (2022). Fortaleza, Brazil. Initiative: Transforming degraded land into Urban Micro Parks. URL: <https://aiph.org/green-city-case-studies/fortaleza-brazil/#Implementation,%20Impact%20and%20Replicability>

Figure 4.10 José Leon micro park incorporates functional elements and green infrastructure



Source: Photo by Fortazela City Hall

Figure 4.11 Seu Zequinha micro park

of the closest residents. Crucially, the first two parks tested concepts in different contexts, helping to define methodologies and identify scalability and economic viability alternatives. Following the successful transformation of these two preliminary sites, three additional locations have been selected for upgrading: Jaspe Street and Luis Montenegro Street, Siqueira and in the Jangurussu neighbourhood where regeneration is currently ongoing. Fortaleza plans to implement 40 parks across the 400 hectares of land identified as suitable in strategic regions by 2024.

The park designs blend naturalization through green infrastructure with the integration of traditional elements required by the community such as benches, rubbish bins, pavements and public lighting. Where municipal budgets are restrained, the initiative is inexpensive and fast to implement as no major construction is required: a vital factor to ensuring its economic viability. In comparison to a traditional regeneration model, 60 percent has been saved on what would have been spent on paved parks¹. Bringing people, and children in particular, into closer contact with nature is not only improving environmental conditions but also increasing cognitive development in early childhood. As a vital component in the city, the parks offer children a greater range of possibilities for imaginative and autonomous play such as exploring and creating. Evidence continues to highlight the correlation between an increased time spent outside in

¹ AIPH, (2022). Fortaleza, Brazil. Initiative: Transforming degraded land into Urban Micro Parks. URL: <https://aiph.org/green-city-case-studies/fortaleza-brazil/#Implementation,%20Impact%20and%20Replicability>.

nature and improved mental health and well-being.

With the aim of creating the largest micro park expansion across Brazil, financing was initially a barrier in advancing the project at the desired scale, however, Fortaleza gained funding from the World Bank through an external financing programme. This has ensured the roll out of at least 30 of the proposed 40 parks. To further secure their delivery, these parks have been included as priority actions in the revision of the municipal plan for early childhood and in the city's walkability plan. The initiative has established that parks are to be distributed across the city to ensure equal accessibility of green spaces for residents within a 500 m walkability radius. Currently, where the secretariat of urban planning and the environment is responsible for the expansion of the initiative, 10 of the 30 parks are under development with transformation already promoted in additional sites including Rachel de Queiroz Park, Passaré Park and Cidade da Criança. Where parks are strategically located close to public facilities, the initiative has integrated with the public

service. The two pilot micro parks, for example, are situated next to recently inaugurated eco-point facilities equipped for the safe disposal of recyclable and construction waste.

The city also carries out environmental awareness campaigns in local communities encouraging people to use the correct locations for waste. To mark the start of the collaboration between the city and the Partnership for Healthy Cities in the preparation of a regulatory framework for monitoring air quality, the Seu Zequinha micro park hosted a giant grey bubble warning about the urgent need to reduce pollution levels and minimize health impacts on children, as shown in Figure 4.12. In combination, these interventions have helped to discourage poor attitudes towards waste disposal, littering, crime and irregular occupation, whilst naturalization is improving air quality and providing local low-income communities with vital green public space. Parks are also located, where possible, within close proximity to early childhood education schools to maximize accessibility for children to enhance their



Source: Fortaleza City Hall, (2021). Fortaleza City Hall delivers Seu Zequinha Micro Park in Barra do Ceará. URL: https://www.fortaleza-ce.gov.br.translate.google/noticias/prefeitura-de-fortaleza-entrega-micro-parque-seu-zequinha-na-barra-do-ceara?_x_tr_sl=pt&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=sc

Figure 4.12 An installation at the Seu Zequinha micro park helps raise awareness on the dangers of air pollution Photo: Kiko Silva

development. This has encouraged local schools to develop outdoor learning activities to further enhance the relationship between children and the natural environment.

Regenerative transformation via a participatory process

Following the first step of land identification in conversation with local government and communities, diagnosis of selected sites was undertaken via data surveys and technical visits with local actors to assess site conditions. As a participatory process, communication was ensured with local community members including children to understand their wants and needs, and to ensure collective transformation, see Figure 4.13. Initial proposals for regeneration were then

presented to local communities to acquire feedback and make any necessary adjustments before hard interventions were made.

Engaging local actors in the implementation process has been a priority throughout the initiative. Whilst the park locations are under the municipal domain, the creation of a community management council responsible for park maintenance has embodied this, cultivating a greater sense of belonging and safety, and encouraging use for leisure activities. Made up of local residents, this has also provided the community with greater access to and contact with the city, especially via the opening of direct channels to the municipality in which their voices can be heard.



Source: Photo by Fortazela City Hall

Figure 4.13 A community engagement event with the participation of local children

Reference experiences

1. Recognize the importance of natural spaces for the development, health and well-being of children in urban areas

The role of natural areas and green space plays a significant role in child development within cities, and the expansion of the micro parks has provided Fortazela with essential components to ensure the health and well-being of local children. As safe spaces, the parks offer opportunities for physical activity and exercise where outdoor play helps children develop gross motor skills, strength and coordination. Similarly, by encouraging more regular physical activity, they also help to reduce prevalent health issues such as obesity and cardiovascular health. Where the micro parks offer calmer, relaxed areas they are also seen to improve mental well-being as well as cognitive development through heightened sensory experiences. As demonstrated by the installation at Seu Zequinha, micro parks can be used to promote environmental awareness and stewardship among local people including children, teaching them the importance of biodiversity, conservation and sustainability fostering a sense of responsibility that encourages young people to become future advocates for urban greening initiatives. In this sense, Fortaleza's micro parks are promoting cultural and educational enrichment, serving as living laboratories offering educational opportunities for children on environmental issues and supporting holistic development. It is important for cities and municipalities to understand the wide array of benefits that parks and green space development offers children and young people, improving all manner of health issues among urban populations.

2. Utilize micro parks as tools for urban regeneration and hubs for green network expansion

With limited green space and multiple pockets of degraded land, Fortazela is showcasing the potential for micro parks to catalyse transformation at both the neighbourhood and city level. Prioritizing implementation in vulnerable, low-income communities, the initiative is working to create an active network of micro parks, acting as hubs to connect the largest urban green network in Brazil. Simultaneously, this is unlocking accessible green space for those most in need and is also connecting

the wider city through key areas of public space. The initiative has shown the value of regenerating underutilized spaces; these parks have been reconfigured from previously unappealing and dangerous areas into valuable community assets. The development highlights the importance for cities to understand micro parks as transformative catalysts for building prosperity in vulnerable communities in particular. Pioneering their advancement, Fortazela showcases the potential of micro parks as affordable solutions to create more inclusive, sustainable and liveable urban environments for residents.

3. Design micro parks as multifunctional and flexible assets that also serve as educational facilities

Designing micro parks for flexible use offers a wealth of benefits including more efficient land use and adaptability, as well as social and environmental benefits such as social cohesion, enhanced community well-being, and increased environmental sustainability and resilience. The multifunctional capacity of micro parks combined with their strategic co-location near schools, illustrates the importance of incorporating a variety of elements into their design from seating, play areas and outdoor gyms to space for urban agriculture, as well as trees, vegetation and permeable areas to enhance local microclimates and build local climate resilience. The implementation of parks in conjunction with schools allows children to be in closer contact with natural areas and enables the parks to serve as educational assets to raise knowledge and awareness on environmental issues.

Rotterdam, the Kingdom of the Netherlands

RUGGEDISED project: the "Heart of South" smart district

Case background

In 2016, the Dutch government laid out a national energy agenda aiming to achieve a carbon neutral economy by 2050 to help fulfil climate and energy goals established by the European Union. As of 2017, 38 percent of national energy consumption was utilized for heating, of which half was in residential buildings, accounting for around 10 percent of national

CO₂ emissions¹. Recognized as a hub of innovation and sustainability, Rotterdam was seen as a key testing ground to initiate an energy transition: the city was recorded as contributing to as much as 20 percent of the national CO₂ emissions².

Following the European Commission's announcement of 112 cities selected to join the European Union Mission on climate neutral and smart cities, Rotterdam proved itself to be among the most ambitious, demonstrating its commitment to pioneering sustainable urban development. In 2016, the city was awarded funding to be a lead partner – a “lighthouse city” – as part of the RUGGEDISED project, a smart city project funded by the EU Horizon 2020 research and innovation programme. Located in Rotterdam south, the Heart of South (*Hart van Zuid*) district was selected as the location for transformation under the project: a diverse area accommodating 200,000 inhabitants³. Faced with a number of socioeconomic and climate related challenges, the district is a car-dominated area prone to traffic congestion, high energy consumption, pollution and aging infrastructure. Due to its diverse mix of residential, commercial and industrial areas, it has served as an ideal testing ground for innovative urban solutions to achieve climate neutrality. The project has focused on maximizing energy efficiency and CO₂ reduction, facilitating a shift from a predominantly fossil fuel-based economy to one based on the use of sustainable energy sources. The district has embarked upon implementing innovative solutions to ensure a sustainable and resilient urban future.

Prior to the launch of the RUGGEDISED project, the Heart of South district was subject to an extensive programme of renovations targeted at its outdated shopping centre, the Ahoy complex of exhibition halls, the integration of cultural arts buildings, the

redevelopment of several large-scale multifunctional buildings, and bus and metro stations through an investment of € 330 million⁴. Building on this initial redevelopment which began in 2016, RUGGEDISED incentivized a number of sustainability objectives to future-proof the development contract to: produce a majority of consumed energy locally; increase the proportion of renewable energy sources and to optimize the use of them for heating and cooling in the district; expand the use of thermal waste streams; reduce CO₂ emissions and air pollution; improve local air quality by securing the roll out of electric vehicles; facilitate more efficient planning to optimize charging and use of the e-bus fleet; and to develop business models that enable the localized generation and selling of electricity, and heating and cooling energy. The project has helped to advance climate neutral urban development and identify concrete actions such as supporting the connection between the needs of the city and available finance.

Implementation process

With measures seeking to enhance energy efficiency and better integrate infrastructure, Rotterdam's focus on becoming a smart city has largely stemmed from the Rotterdam Energy Approach Planning methodology; prior work which has served as the core strategy to maximize energy efficiency in buildings and public spaces across the city. Via RUGGEDISED, interventions have sought to reduce energy demand, reuse waste energy and increase the use of renewable energy. As a demonstration zone, the Heart of South district has delivered on these objectives from 2016 to 2023 through the implementation of 13 solutions proposed in the RUGGEDISED project as shown in table 4.2. Accordingly, RUGGEDISED has sought to tackle these issues via a holistic approach, combing smart energy systems, intelligent mobility solutions

1 Rotterdam School of Management, (2022). Towards an Energy Transition in the City of Rotterdam: Smart Thermal Grid initiatives. (Accessed: 15/06/2023).

2 Rotterdam Climate Alliance. Rotterdam Climate Agreement. URL: https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ab410faa2f42204838f7990/5be174d6337f770010c1b69f/files/1.2.2_Rotterdam_Climate_Agreement_ENG.pdf?1601637912. (Accessed: 15/06/2023).

3 RUGGEDISED, (2022). Implementation report Rotterdam. URL: https://ruggedised.eu/fileadmin/repository/Publications/D2.16_-_Final_Implementation_Report_Rotterdam.pdf. (Accessed: 16/06/2023).

4 RUGGEDISED. Deliverable 1.2, Overarching Innovation and Implementation Framework: URL: https://ruggedised.eu/fileadmin/repository/Publications/Overarching_innovation_and_implementation_framework.pdf.

Table 4.2 The 13 proposed RUGGEDISED smart solutions in the Heart of South district

RUGGEDISED solutions
R1: Geothermal heat-cold storage and heat pumps
R2: Thermal energy from waste streams
R3: Surface water heat-cold collection
R4: Pavement heat-cold collector
R5: DC grid, PV and storage for e-mobility
R6: Smart charging parking lots
R7: Optimizing the E-bus fleet
R8: Energy management
R9: 3D city operations model
R10: LoRa network
R11: Efficient and intelligent street lighting
R12: High performance servers in homes
R13: Smart waste management

Source:RUGGEDISED. Deliverable 1.2, Overarching Innovation and Implementation Framework: URL: https://ruggedised.eu/fileadmin/repository/Publications/Overarching_innovation_and_implementation_framework.pdf

and sustainable planning.

Rotterdam was already subject to long-standing cooperation between the city and public and private partners in advancing sustainable and smart city concepts prior to the launch of RUGGEDISED project work. With RUGGEDISED funding awarded in 2016, this aimed to strengthen existing working relationships through the demonstration of a series of sustainable and smart urban solutions in the selected Heart of South district. The project has sought to accelerate the 13 smart city solutions relying on an intricate network of cooperation between academic institutions, city authorities and private sector actors, among others. See Figure 4.14.

1. Integrating thermal energy solutions to optimise energy efficiency

As one of the core measures to enhance energy efficiency and CO₂ reduction, Rotterdam deployed the Heart of South district smart thermal energy grid in October 2022. The grid has connected large buildings across the district as well as new parts of the Ahoy complex, the congress centre, cinema and hotel buildings. It will continue to connect to additional



Source: <https://ruggedised.eu/cities/rotterdam/>

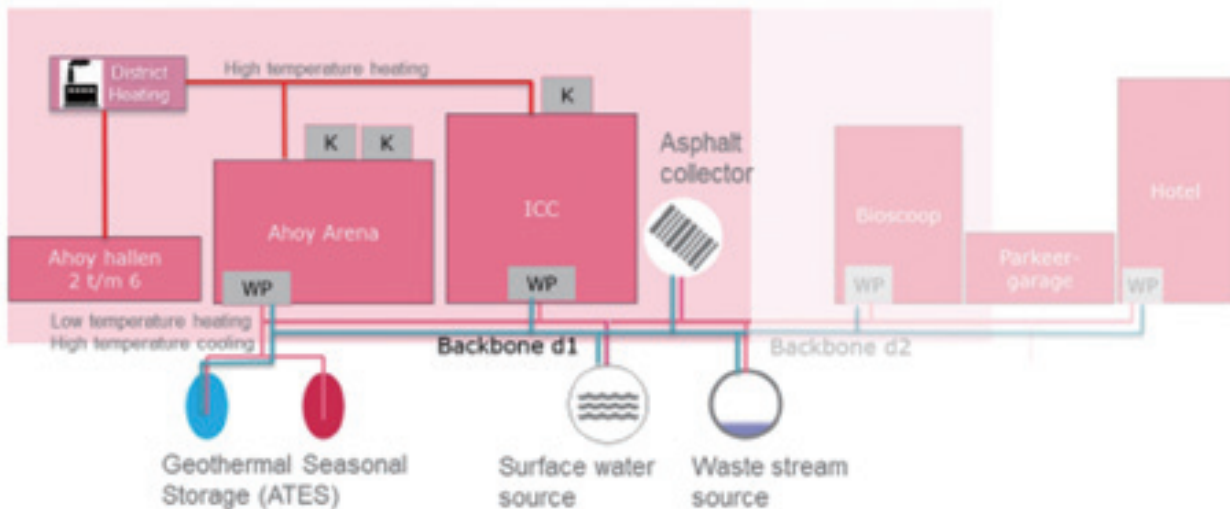
Figure 4.14 The respective locations of RUGGEDISED solutions across the Heart of South district

buildings, transforming the entire area into a single grid. Aiming to facilitate the exchange of heat and cold between buildings, the intervention has reduced energy usage and costs, optimizing the efficient distribution of heat and cold. It is also minimizing the use of fossil fuel energy and preventing peak loads whereby heat and cold are produced within local buildings and stored underground when they are not required. The solution has integrated multiple innovations such as combining a thermal grid with aquifer storage and has utilized heat pumps with wastewater heating and cooling, as well as asphalt heat recovery. Crucially, the solution has transformed energy use within the Ahoy complex – now a highly sustainable and gas-free building independent of fossil fuel energy sources – in which the majority of heat, cold and electricity is produced locally, on-site or extracted from underground.

In addition to a thermal storage facility and heat pumps, heat collector panels were installed in the basin of a pumping station next to the Ahoy complex in August 2022. The panels were connected to the thermal grid which has enabled the generation of thermal energy from waste streams. At the district scale, sewage water from local households was used

to extract heat and cold to use within the grid, see Figure 4.15. Coordinated between the municipality and Eneco – the operator of the smart thermal grid – the solution is projected to save 28 tons of CO₂ annually through decreasing energy consumption¹. A pavement heat-cold collector was also installed behind the Ahoy complex due to its close proximity to the thermal grid heat pumps and due to the repaving of an existing asphalt road. Energy consumption is projected to decrease by 108.000 kWh annually – the equivalent of 52 tons of CO₂¹.

Combined with the thermal energy from waste streams and the heat-cold pavement collector, the smart thermal grid has demonstrated considerable success throughout its implementation. The system now ensures that the district is capable of producing large quantities of thermal energy locally with 1.2 kWh annually projected from the thermal grid alone without the use of fossil fuels¹. In addition, it ensures that residual heat is valuably reused and enables user flexibility via smart switching between individual buildings. The system has a 5 ~ 10 year lifespan, supplying 20 percent more buildings with sustainable heat and cold using less power, whilst also reducing



Source: Towards an Energy Transition in the City of Rotterdam: Smart Thermal Grid initiatives [https://repub.eur.nl/pub/137108/Download%20Case%20Study%20\(PDF\)](https://repub.eur.nl/pub/137108/Download%20Case%20Study%20(PDF))

Figure 4.15 Schematic diagram of the smart thermal grid

1 RUGGEDISED, (2022). Implementation report Rotterdam. URL: https://ruggedised.eu/fileadmin/repository/Publications/D2.16_-_Final_Implementation_Report_Rotterdam.pdf. (Accessed: 16/06/2023).

energy savings by 50 percent and CO₂ by 50 tonnes per year¹. As a replicable intervention, the grid has demonstrated significant capacity to enhance energy efficiency and reduce CO₂ emissions, and importantly can be incorporated into other cities with and without district heating systems.

2. Developing smart electricity solutions

In addition to the thermal grid, Rotterdam has generated smart electricity through large-scale solar installations in the district along with the introduction of e-vehicles and chargers. The development of business models and scientific studies were undertaken on the implementation of photovoltaic (PV) panels and a charging station for e-buses. To increase the use of renewable energy to boost the electric grid and meet energy demands for the growing e-bus fleet, more than 15,500m² of solar panels have been incorporated into the district with approximately 12,000m² of PV panels installed on the roofs of the Ahoy complex as well as the newly built Ahoy Convention Centre through a partnership between the Energy Utility ENECO and Rotterdam municipality, see Figure 4.16². Around 25



Source: <https://news.eneco.com/roof-of-rotterdam-ahoy-is-source-of-sustainable-energy/>

Figure 4.16 Solar panels installed on the Ahoy complex roof

percent of all electric energy used in the Ahoy complex is now produced by the PV panels. The municipality has also invested in 1,630 solar panels on the new Zuidplein Theatre, 518 panels at the Zuidplein metro station and 30 panels at the pumping station along Zuiderparkweg³. Software has also been deployed to monitor local energy consumption, for example, the Ahoy complex is using Simaxx software to optimize energy management where real time data measures energy use in different exhibition and congress halls.

To advance the transition from conventional diesel buses towards battery powered electric buses, 55 electric buses were contracted in December 2019 marking the first step in the local transition to zero emissions bus transport. In mid-2022, 50 additional buses were integrated with the final 150 buses expected between 2025–2030 which will replace all buses equipped with combustion engines. A direct current (DC) network connects solar panels with a battery and charging point for buses. Energy produced by the panels can be stored and used by the electric buses with immediate effect. The measure has re-emphasized the potential for solar power as an interconnected energy solution for both vehicles and buildings. Based on the implementation of the 55 e-buses, 5,925,999 kwh is saved per year, the equivalent of 3.15 tons⁴. To optimize the e-bus fleet, both a simulation and optimization model were tested on a fleet of 50 e-buses charged at the Heart of South district bus terminal. The simulation model was designed to help evaluate various charging strategies, whilst the optimization model has helped to identify a charging schedule to minimize both the number of charging activities and charging costs. The district is now optimizing the routes and timetables of individual bus lines with charging times, which in turn has led to a considerable reduction in nitrogen oxides levels across the city⁵.

1 Rotterdam School of Management, (2022). Towards an Energy Transition in the City of Rotterdam: Smart Thermal Grid initiatives. (Accessed: 15/06/2023).

2 Cowan. S., (2021). Rotterdam realises smart city solutions through collaborative approach. URL: <https://www.sustaineurope.com/rotterdam-realises-smart-city-solutions-through-collaborative-approach-20210629.html>.

3 Eneco, (2021). Roof of Rotterdam Ahoy is source of sustainable energy. URL: <https://news.eneco.com/roof-of-rotterdam-ahoy-is-source-of-sustainable-energy/>

4 RUGGEDISED, (2022). Implementation report Rotterdam. URL: https://ruggedised.eu/fileadmin/repository/Publications/D2.16_-_Final_Implementation_Report_Rotterdam.pdf. (Accessed: 16/06/2023).

5 Abdelwahed, A., van den Berg, P. and Brandt, T., (2019). Enabling sustainable public transport in smart cities through real-time decision support.

3. Establishing a 3D city operations platform to pilot smart city functionality

To advance sustainable city planning and management with a focus on energy and the environment, Rotterdam has also piloted the creation of a 3D city operations platform through RUGGEDISED. Serving as a tool for learning, the operations model is designed to become a “digital twin” of the Heart of South district, enabling “proof of concept” testing for a range of smart solutions to drive environmental sustainability and efficiency. A number of interventions feed into the platform including the installation of 14 smart lighting poles through which their energy data feeds into the model to provide performance insight. Interconnected as a network to allow for their centralized control, the poles are reducing emissions through the use of LED lighting and contain integrated sensors that allow for continuous smart services 24 hours a day. Moving forward, these smart lamp posts are being rolled out across wider Rotterdam. RUGGEDISED partners have equipped all waste containers in the district with a smart sensor (filling degree meter) which measures their capacity. These sensors have ensured greater efficiency in emptying waste containers via data, and where drivers are equipped with integrated navigation systems they have helped to optimize transit routes via dynamic route planning. Initially a small demonstration project in the district, the waste meters have now been expanded city-wide with remarkable results during the COVID-19 pandemic.

Through bold and innovation solutions, the RUGGEDISED project has helped springboard sustainable development in the Heart of South district moving Rotterdam closer towards climate neutrality as part of the European Union’s mission to develop 100 climate neutral and smart cities by 2030. It is, however, important to note that a number of challenges presented themselves throughout the project implementation phase. Legislative hurdles, procurement difficulties, contractual obligations as well as the insolvency of some small and medium enterprises prevented the integration of several solutions including surface water heat-cold collection, smart charging parking lots and the roll out of the LoRa network aimed at preventing the need for the 3D operations network to require internet connection.

Reference experiences

1. Understand the benefits of applying inter-connected solutions in sustainable energy development

The RUGGEDISED project has supported the deployment of a successful combination of integrated smart solutions for energy, e-mobility and business models in the Heart of South district. Project implementation results have highlighted the importance of introducing feedback loops in the integration of smart energy systems. Interlinkages such as energy production stemming from PV panels used for buildings and e-mobility options, as well as the incorporation of waste management and lighting pole sensors into the 3D city operations model, have created a series of feedback loops promoting energy efficiency and the use of renewable energy sources. Interoperability and open data principles played a crucial role in enabling the exchange of information with the city model. Rotterdam has highlighted the value of integrating systems and technologies to create seamless and interconnected smart city energy and e-mobility infrastructure. In addition, it has emphasized the need to improve connectivity, not only between solutions, but also implementation partners and city networks. Where the city of Rotterdam has acted as the project coordinator, it has boosted connections with other cities, supported European efforts on smart cities and also actively sought local partnerships to advance change for citizens.

2. Start small-scale to pilot innovation in energy systems

Where the Heart of South district has served as a “living lab”, it has operated as a small-scale testbed location to validate and refine energy technologies and innovations before their wider-scale deployment across the city. By implementing energy innovations on a smaller scale, this has allowed Rotterdam to experiment, fine-tune solutions, assess feasibility and reduce risks associated with large-scale development. The project has demonstrated the value of testing integrated energy solutions to help evaluate effectiveness of solutions before wider adoption. Testing energy solutions on a smaller scale has enabled the trialling of technological innovation, iterative development and incremental delivery in the roll out of energy measures thus providing flexibility in

terms of deployment and scalability.

Policy suggestions

1. Encourage full public participation for the sustainable development of cities and communities

In order to achieve sustainable development of communities, it is important for the residents to be actively involved throughout the whole process of planning, implementation, evaluation and management. Public opinions should be fully heard in policymaking which can be acquired by questionnaires, consultations, etc. Propelling residents' engagement in community building to promote self-governance and co-governance has provided a solution to overcoming the inefficient mode of management under the unilateral domination of the government in the traditional sense, and at the same time has provided valuable ideas and experience for many cities or communities that are still in the rapid development stage of the urbanization process.

2. Capitalize on partnerships to pool resources for comprehensive climate resilience strategies in vulnerable urban communities

If cities are to become truly resilient, the populations themselves must have a voice with consultations leading to better long-term decision-making. Accordingly, policy solutions on climate change must focus on achieving long-term benefits as opposed to short-term fixes, promoting integrated planning strategies based upon community participation and partnerships. To achieve equitable outcomes in climate action planning, it is imperative that cities foster cooperative approaches that leverage collective expertise, resources and perspectives to create nuanced responses that are adapted to context. The work of UrbaSEN and FSH with local informal communities in Dakar has demonstrated the value of partnership building when it comes to combining local resilience to flooding, in particular, as well as the impact of community revolving funds to effectively finance infrastructure delivery. Local governments can support such resilience work via targeted policy

interventions that help integrate holistic strategies in vulnerable urban communities whilst also leveraging innovative financing mechanisms such as public-private partnerships and microfinance to adequately resource those communities left further behind.

3. Integrate micro parks into development strategies as tools to create more equitable urban environments

Small and large-scale urban parks as well as greening strategies enable local governments to advance balanced territorial development. The integration of urban micro parks in Fortazela shows how cities can utilize them as tools to transform neglected spaces, promote improved environmental quality and stewardship, enhance health and social conditions within communities, and improve urban safety. Accordingly, it is important for policymakers to acknowledge the benefits that micro parks bring to territorial and community development as components that can exploit the advantages of urban density and urban form. By acknowledging the critical necessity for their integration in order to achieve sustainable urbanization, urban policy can facilitate micro park integration with a particular focus on underserved communities, promoting a more spatially equitable distribution of public spaces to local citizens. To supplement the long-term implementation of such policy, diversified multi-year funding strategies will also be required leveraging innovative economic instruments such as tax revenue, public budget allocation, community development grants and external financing.

4. Promote flexible frameworks on energy policy to facilitate the transition to low-carbon cities

Targeted policy on low-carbon transition is key to springboard climate neutral cities whereby local governments must channel investment into energy-efficiency solutions in cities and urban areas. As demonstrated in Rotterdam via the RUGGEDISED project, testing low-carbon infrastructure strategies on an intra-city scale can help to pilot innovative solutions and generate learning for the further roll out of sustainable energy projects. Measures such as renewable energy integration, energy-efficient building technologies, smart grid systems as well as e-mobility and waste-to-energy initiatives all show significant promise for cities. The identification of heat zones

for buildings, decarbonized transport planning and building retrofit priorities are also all key as part of local area energy planning. Flexible low-carbon policy frameworks will enable local governments to generate plans that are appropriate for their areas, avoiding a patchwork of conflicting approaches whilst enabling a faster pace of delivery for more ambitious locations. In light of the rapidly evolving energy landscape,

flexible energy policy can help cities adapt to changing technologies and market dynamics, and stimulate more tailored solutions as well as innovation and experimentation in the delivery of new urban energy solutions. To this end, along with the introduction of non-competitive long-term investment in energy efficiency infrastructure, it is also important that public spending is aligned with net-zero ambitions.

Chapter 5

Culture: culture of innovation and urban heritage



Introduction¹

"Funding the cultural and creative sector is an investment, not a cost²." Investment in the cultural and creative sector is directly reflected in the generation of jobs and economic benefits through the development of cultural and creative industries, and investment that also brings about many indirect benefits which are often overlooked. The inheritance of and participation in traditional cultures and the dissemination of the arts often reaches people in a way that can be perceived and accepted, thus becoming a part of social inclusion and equality in life. Studies³ have shown that cultural and creative activities play a significant role in advancing individual and collective health and well-being, thereby enhancing overall resilience.

Although the power of culture is recognized by most administrators, an overall investment in the creative industries by governments is still generally low. In 2019, OECD member countries spent an average of 1.2 percent of their total government expenditure on cultural services. In contrast, local governments invested relatively heavily in culture with an average of about 3 percent, but this is still insufficient³.

It is clear that public input alone cannot nourish the entire cultural and creative sector. In addition to government funding and tax incentives, most organizations and enterprises obtain development funds in the following ways: (1) through self-operation and maintenance including founders' investment, income from cultural operations, etc.; (2) debt financing, i.e. obtaining funds through secured or unsecured loans; (3) financing, i.e. transferring part of the ownership of the organization in exchange for funds; and (4) acquiring funds from other enterprises, charities and social organizations as well as public fundraising through donations and sponsorships. These financing methods borrowed from various industries have undergone changes and innovations as they have continued to meet the unique needs of the cultural and creative fields, and are helping to promote the growth of increasing numbers of art and culture organizations.

This also reminds local governments of the importance of encouraging diverse cultural and creative financing methods. The government should not be a sponsor that reverses the current situation by doing everything, but a guarantor of public cultural services. This chapter aims to show how to build a cultural and creative financing ecology through public-private partnerships and multi-promotion on the basis of four city cases.

Administrators need to think about how to invest the government's limited cultural budget in the most vulnerable areas, and how to enhance the viability of arts and culture organizations themselves. For example, the Singapore government encourages non-profit organizations to improve their self-funding and financial management abilities by providing 1:1 matching public subsidies to organizations that hold fundraising and other activities.

Administrators also need to work out how to introduce various innovative funding methods and adapt these approaches to the development characteristics of the cultural and creative fields. Taking San Francisco in the United States of America as an example, the city has constructed a "Lease to Own" funding model, showing how to use public-private

1 This chapter was written by Shi Wen, Sheng Yang, Ouyang Chen, Tang Yingying and Yang Rongbin from Shanghai Library (Institute of Scientific and Technical Information of Shanghai). The case of Nanjing was recommended by the Ministry of Housing and Urban-Rural Development of China. The authors are grateful to Nanjing Historic Urban Protection and Construction Group Co., Ltd. for supporting materials.

2 OECD, (2022). *The Culture Fix: Creative People, Places and Industries, Local Economic and Employment Development (LEED)*, OECD Publishing, Paris, <https://doi.org/10.1787/991bb520-en>.

3 Zbranca, R., and others, (2022). *CultureForHealth Report. Culture's contribution to health and well-being. A report on evidence and policy recommendations for Europe*. CultureForHealth. Culture Action Europe.

partnerships to help arts and culture organizations to obtain affordable and long-term stable jobs and rehearsal space in the context of overly rapid urbanization, and enjoy the priority to purchase property rights after a long lease expires. This model is being spread and exported to other cities that face a cultural space crowding-out crisis.

City administrators should explore appropriate ways to encourage in-depth participation in culture to turn citizens into enjoyers and advocates of culture. The cases of Yangon (Myanmar) and Nanjing (China) both show how the owners of heritage buildings were guided to cooperate with governments and social organizations to form a mechanism for jointly raising funds to renovate their property, with some buildings being upgraded for rental or commercial operation with the relevant income fed back into public space. The difference between these two cases is that the Yangon case was initiated by private enterprises while the Nanjing case was led by local government, but both cases fully respected the wishes of the citizens and ensured the harmonious integration of heritage blocks and residents' lives.

Cases studies

Singapore Cultural matching fund

Case background

Singapore a country of immigrants with the distinctive characteristics of small size, large population and multiple races. Chinese, Malay and Indian are the three largest ethnic groups. In such a multi-cultural social context, the arts provide the community with a channel for self-expression and exploration, strengthening their common culture and sense of personal identification. Bringing everyone together plays an active role in promoting trust, preventing misunderstanding and conflicts between races, and enhancing mutual respect – an increasingly important part of Singapore's efforts to build a “harmonious and pluralistic society”.

The Singaporean government hopes to steadily build a diverse cultural investment system to coordinate the public and private sectors, and work together to support the prosperity of arts and culture. The government's investment in arts and culture increased from SGD 230 million in 2005 to SGD 437 million in 2011, but private donations to arts and culture failed to

keep pace. Before 2013, annual cash donations from the private sector hovered between SGD 30 million and SGD 40 million, and only 3 percent of charitable donations went to arts and culture. Donations to the cultural sector in Singapore were about SGD 7 per capita, while those of Australia, the United Kingdom of Great Britain and Northern Ireland, and the United States of America were SGD 13, SGD 14 and SGD 35 respectively¹. The Singaporean government still has plenty of leeway, therefore, to guide and encourage more funding to the cultural sector from the private sector, thus generating greater rewards.

Through extensive consultation with donors and cultural groups, the Ministry of Culture, Community and Youth of Singapore (MCCY) established the Cultural Donation Matching Fund (now the Cultural Matching Fund – CMF) which provides 1:1 matching subsidies for private cash donations raised by arts and culture heritage and public welfare organizations, aiming to encourage all people to play a greater role in local arts and culture heritage. CMF also improves the self-financing ability of arts and culture organizations so that arts and culture institutions can achieve sustainable endogenous growth.

Implementation process

CMF itself does not receive donations – its funds come

¹ CULTURAL DONATION MATCHING FUND [EB/OL][2023-06-18]. <https://www.mccy.gov.sg/-/media/MCCY-corp/Sectors/CDMFPublicConsultation.pdf>.

from financial allocations from the government. MCCY first injected SGD 200 million into the fund in 2013¹, starting its first life cycle. One life cycle refers to the period from the time when the government grants the funds to the end of the distribution of these funds, lasting about three years. In 2017, the government injected another SGD 150 million into the fund to start its second life cycle². Singapore's 2022 fiscal year budget showed that the government's third capital injection will also be SGD 150 million³.

Registered culture, arts and heritage charities, and public welfare organizations can apply for CMF funding. The CMF secretariat also considers applications from other special charities and public welfare institutions that carry out important arts and heritage activities, and benefit the arts and heritage sector, based on specific circumstances. Institutions can apply for a subsidy equal to the amount of private cash donations they raise through their own fundraising capabilities. It should be noted that only pure cash donations are eligible for matching subsidies, and no donations in kind such as cultural relics, advertising replacements, venues or pro bono services are eligible. Cash donations must have been deposited into the recipient organization's bank to be eligible for the application, and no outstanding subscriptions are eligible. In order to facilitate the vigorous development of cultural philanthropy, no minimum amount is set for the application itself, but for the sake of administrative efficiency, CMF encourages all organizations to apply for a matching subsidy of at least SGD 5,000 in self-financing funds. The matching subsidy must be used up within three fiscal years, and the usage details must be disclosed to the public⁴.

The Singapore National Arts Council⁵ report for the 2021–2022 fiscal year showed that more than 110

arts and heritage charities had been funded since the establishment of CMF, and the matching subsidies issued by CMF had exceeded SGD 320 million. Cultural organizations and groups of all types and sizes including arts groups, heritage and visual arts museums, arts venue operators and arts education institutions, had benefited from the fund.

1. Flexible and sustainable use of funds

Only by treating arts and culture groups equally can the government improve the overall artistic and cultural atmosphere. However, for different arts and culture heritage groups, priorities and boundaries have to be followed for government support. As far as CMF is concerned, its primary consideration in allocating funds is to balance the needs between large arts and culture institutions, and small and medium ones since the artistic and cultural atmosphere of a country relies not only on professional and large groups as the mainstay of the arts and culture field, but also the participation of small-sized and medium-sized, non-governmental and grassroots arts groups. Furthermore, the government needs to create the opportunities and conditions for the latter to encourage vibrant Singaporean culture.

CMF also focuses on balancing support for emerging and established groups. Considering that emerging groups need funds for their daily operation and maintenance while established ones are looking for long-term sustainability, their funding needs are quite different. CMF sets the upper limit of available supporting funds according to the size and background of the group so as to ensure the fair distribution of finances and responsible spending.

In order to prevent the funds from being monopolized by any single organization and ensure that emerging groups can also benefit, CMF stipulates that within its

1 CULTURAL DONATION MATCHING FUND [EB/OL][2023-06-18]. <https://www.mccy.gov.sg/-/media/MCCY-corp/Sectors/CDMFPublicConsultation.pdf>.

2 Welcome Address by the Trust Secretary of the Cultural Donation Matching Fund [EB/OL][2023-06-18]. https://www.mccy.gov.sg/-/media/CMF/CMF-Presentation_upload.pdf.

3 Charting our new way forward together. Budget 2022. [EB/OL][2023-06-18]. https://www.mof.gov.sg/docs/librariesprovider3/budget2022/download/pdf/fy2022_budget_booklet_english.pdf.

4 FAQs to the Cultural Matching Fund (CMF). [EB/OL][2023-06-18]. <https://www.mccy.gov.sg/-/media/CMF/FAQs-on-CMF-2022.pdf>.

5 FORGING CREATIVE CONNECTIONS WITH THE ARTS [EB/OL][2023-06-18]. [https://www.nac.gov.sg/flipbooks/flipbookview.aspx?pdf=https://www.nac.gov.sg/docs/default-source/about-us-files/annual-report/nac-ar-21_22-final-10oct-r2-\(lores-pdf-a-with-links\).pdf?sfvrsn=f75656d3_0](https://www.nac.gov.sg/flipbooks/flipbookview.aspx?pdf=https://www.nac.gov.sg/docs/default-source/about-us-files/annual-report/nac-ar-21_22-final-10oct-r2-(lores-pdf-a-with-links).pdf?sfvrsn=f75656d3_0).

life cycle, the matching subsidies for each group will be capped at SGD 10 million. The cap was increased to SGD 15 million after September 2015¹.

As for the use of funds, the Singapore government has given arts and culture organizations general discretion. Within a life cycle of the fund, the first matching subsidy received by an organization not exceeding SGD 300,000 may be granted provided that it does not cause racial or religious conflict or misunderstanding or damage to Singapore's reputation, and does not engage in lobbying activities. Funded organizations may make their own arrangements and use the funds flexibly, even to cover operational costs such as salaries, staff training and rent. The online consultation advice received by MCCY shows that most respondents wish to reduce the restrictions on the use of CMF financing, allowing art groups and artists to achieve greater creativity, and better meet the differentiated demands of separate groups. The Singapore government hopes that matching funds will help arts and culture groups to foster their long-term sustainable development capability and prevent such funds from unexpectedly causing a "bust after boom" situation. Therefore, funds exceeding SGD 300,000 (including the condition that multiple applications for matching funds exceed SGD 300,000 accumulatively by the same organization within the same life cycle of the fund) must be used for purposes directly related to cultural development, for example, projects that can: revitalize or change Singapore's cultural landscape; fill critical gaps in the arts and culture ecosystem; facilitate the integration of different groups into Singaporean society through arts and heritage; or promote the sustainable development of the arts and heritage field.

2. Creating an atmosphere of charitable art donations with the participation of all people

According to the 2015 Singapore nationwide arts population survey, 8 out of 10 Singaporeans had

participated in arts activities and almost 9 out of 10 believed that the arts had helped them to better understand people from different backgrounds². Arts and culture brings many direct benefits to Singapore, including job opportunities, tax revenue, investments, consumer purchases and tourism to stimulate the local economy. In addition to economic benefits, arts and culture also intensifies people's sense of identity. In order to emphasize this point, the government wants to convey an important idea to the public: that besides art participation, art sponsorship is also crucial to the sustainable development of the arts and can help citizens to become more deeply involved in the arts and culture sector. The first government allocation of SGD 200 million encouraged additional private donations to a great extent, fostering a cadre of arts donors who have developed a strong sense of identity and consciousness of the development of the arts sector. By creating an atmosphere in which all of society pays attention to arts and culture, and actively participates in donations, a partnership between the public sector, private sector and people is created. According to data from the Singapore Cultural Statistics, since the establishment of CMF at the end of 2013, private cash donations received between 2014 and 2021 exceeded SGD 300 million³. Judging from the impact of the implementation of CMF, the benefits brought by private donations to arts groups have doubled with the aid of CMF, which has greatly boosted the confidence of donors and led to an increase in donations.

In order to allow both the supply and demand sides of donated funds (arts and culture institutions, and donors) to better join the partnership, the government has adopted diversified ways to promote CMF-related information. For example, in March 2018, the fund held a technical seminar, "How to raise and maintain financial support to formulate an optimal strategy", as shown in Figure 5.1, in order to provide self-financing resources and the necessary skills training for art

1 MCCY [EB/OL][2023-06-18], <https://www.facebook.com/MCCYsg/posts/there-has-been-a-growing-interest-in-the-arts-by-singaporeans-in-the-past-few-ye/998383776886424/>.

2 Story of the Arts [EB/OL][2023-06-18]. https://www.nac.gov.sg/docs/default-source/about-us-files/annual-report/story-of-the-arts.pdf?sfvrsn=16a65829_2.

3 Singapore Cultural Statistics 2022 [EB/OL][2023-06-18], https://www.nac.gov.sg/docs/default-source/resources-files/research/others/scs-2022-report.pdf?sfvrsn=18e9aeb2_2.

companies and individual artists, and enhance people's interest and confidence in applying to CMF. In April 2019, CMF and the Singapore Charity Council jointly held a meeting to discuss major issues such as how to resolve interest conflicts, improve the operational skills and competitiveness of the board of directors, and achieve sustainable growth through good governance. More than 70 representatives from over 50 arts and cultural heritage organizations participated in the meeting. The government is contributing to building a more caring and cohesive society by connecting communities, facilitating intercultural understanding and bringing together Singaporeans from all walks of life to engage in arts and cultural heritage-related activities.



Source: Report for fiscal year 2017/2018 of the Singapore National Arts Council

Figure 5.1 Cultural Matching Fund technical seminar

3. Supporting small groups and minority art lovers

Small arts charitable groups, communities in urban fringes and minority art lovers lacking financial support can all benefit from CMF: (1) because CMF emphasizes support for and all institutions. Many small-scale art organizations have benefited from funding such as the Singapore Philanthropic Orchestra, Singapore Drama Educators Association and Jazz Society. Matching funds enables the recipients to curate impactful art projects such as the Lion City Youth Jazz Festival, aiming to absorb new musicians into

Singapore's jazz scene; and (2)CMF attracts people from all social classes through arts and cultural heritage, including unbenefited and urban fringe communities, and strives to develop new audiences with a long-term love for the arts. In order to create a warm and inclusive society, the government injected another SGD 150 million into CMF in the 2022–2024 fiscal years¹ to facilitate more private and corporate donations to arts and culture charities.

4. Taking advantage of the trend to promote the digital transformation of art groups in the post-pandemic era

Before the COVID-19 pandemic, the arts in Singapore had been on a healthy and positive trajectory with new and diverse talents emerging rapidly. However, the pandemic dramatically changed the way that the arts are created and consumed, which is unlikely to be reversed. During mandatory lockdowns, Singaporeans stayed at home and from their comfortable living rooms, visited the collections of the Louvre Museum in Paris and watched performances at the National Theatre online. Arts groups also adapted to the changes quickly, reaching out and attracting new fans through the internet, enjoying Nam Hwa Opera via Facebook, watching recorded live shows at the Esplanade – Theatres on the Bay and listening to music by the Singapore Symphony Orchestra on Spotify. In order to better adapt to the digital development trend of the arts and international arts platforms, and allow artists to share and develop their works in a variety of ways, Liu Yanling, Minister of Government Affairs for the Ministry of Culture, Community and Youth and the Ministry of Trade and Industry of Singapore, said that the government will draw up a digital roadmap for arts and culture² to guide arts and culture organizations on their digital journey, and CMF would provide the following support: (1)financial support for digital solutions; (2)financial support for digital capacity development and building; and (3)financial support for digital presentation, aiming to present new art forms beyond physical art spaces through more collaborative and inclusive co-creation among artists, partners and communities.

1 ANNEX E-4: MEASURES TO SUPPORT CHARITIES AND ENCOURAGE PHILANTHROPY [EB/OL][2023-06-18].<https://www.mof.gov.sg/docs/librariesprovider3/budget2022/download/pdf/annexe4.pdf>.

2 ARTS AND CULTURE DIGITAL ROADMAP [EB/OL][2023-06-18].<https://www.mccy.gov.sg/-/media/ACDR/ACDR-Abridged.pdf>.

Reference experiences

1. The donation-matching fund model can help enhance the self-financing capabilities of cultural organizations

CMF emphasizes that the self-financing capacity of arts and culture organizations is the premise of government funding. Only with self-raised funds can they obtain matching public funds. This achieves two goals at the same time: the first is to continuously strengthen the viability of cultural organizations, which is also a prerequisite for their sustainable development in the future; and the second is the indirect contribution to building an atmosphere of cultural donations among the people which has helped to attract more donors and donation institutions in the private sector, turning private funds into a key pillar for advancing the development of arts and culture. The forming of this atmosphere has especially deepened the understanding of the concept of “cultural participation” by citizens and private institutions, that is, not only to watch, engage in or experience arts and culture works, and cultural creations, but to contribute to its sustainable development.

2. Exploring diversified partnerships between donors and cultural organizations will help to intensify the operation and maintenance capabilities of cultural organizations

In order to maintain the momentum of private donations to arts and heritage groups, and advance the development of cultural philanthropy, MCCY injected an additional SGD 150 million into CMF in 2017¹ which was exclusively used to promote the establishment of a deeper co-construction relationship between the cultural sector and private sector, and make more contributions to the development of the cultural sector. Under the advocacy of this concept, arts and culture organizations in Singapore receive not only financial support but also expertise, expert advice, and diversified resources and assistance from different industries. In addition to cash donations, donors are encouraged to provide arts and culture organizations with business experience and professional mentoring in

such areas as finance, marketing, law and governance, all of which support arts-related development while improving Singapore's arts economy, and helping to intensify the operational capabilities and marketing skills of all these organizations.

3. The government emphasizes the balanced distribution and flexible use of public funds, which is conducive to the healthy development of the cultural ecology

While creating similar matching funds, the government should emphasize the balanced distribution of public funds by ensuring that arts and culture groups of different types, segments and sizes receive corresponding and balanced assistance, and eliminate such problems such as monopoly, injustice and discrimination. To this end, the government may first need to establish a set of principles and priority rules for fund allocation based on the development of the local cultural field.

The government should also pay attention to the flexible use of public funds. For example, the government has set a free-to-use funding amount wherein matching subsidies below SGD 300,000 can be spent by funded institutions at their discretion. Such flexibility gives small and medium arts groups more space for their independent development. Of course, the government should also stipulate a set of reporting and monitoring mechanisms for the use of allocated funds to make sure the investment is employed appropriately and efficiently.

The government also needs to pay attention to the development situation of the entire arts and culture sector, and ensure the resilience of the cultural ecology through public assistance in the face of sudden challenges such as the COVID-19 pandemic. In this case, the government adjusted the funding direction of CMF in a timely manner in the post-pandemic era, emphasizing the digital transformation of arts and culture organizations – an important measure taken to save the market.

¹ Story of the Arts [EB/OL][2023-06-18]. https://www.nac.gov.sg/docs/default-source/about-us-files/annual-report/story-of-the-arts.pdf?sfvrsn=16a65829_2.

In addition, the policy goal of the CMF model is to improve the financing capacity of cultural organizations, and the government can also change the policy goal by altering the matching conditions of such funds. For example, the performance income of small art groups can be used as a matching condition to encourage art groups with insufficient funds to temporarily obtain production costs that meet high-quality standards by “selling more tickets for small-cost works”, thereby reaching the development stage of high-input production.

San Francisco, United States of America

Community Arts Stabilization Trust

Case background

Like many big cities, San Francisco has an overheated property market. After the Great Recession in 2008–2009, San Francisco’s economy bottomed out, creating many jobs and an influx of about 75,000 new residents. However, the property market only built 17,000 new housing units during the same period¹, and the market supply failed to keep up with the growth in demand. At the same time, Silicon Valley has driven San Francisco into the centre of the world’s technology industry and innovative culture, which has rapidly increased the price of commercial housing. With rent doubling in just four to five years since 2010², San Francisco is the city with the most expensive housing in the country.

In the context of rising rent and housing prices, a large number of arts and culture organizations were facing the dilemma between relocation and closure. Although wealthy art lovers have made considerable donations to major local arts groups providing symphonies, operas, ballets, etc., most small- and medium-sized arts and culture organizations that are not well-known have difficulty finding long-term, stable and affordable

venues, and related art practitioners have gradually left the downtown area as a result. More often than not, it is precisely these small-sized and mid-sized non-profit arts organizations that contribute significantly to the diversity and innovative spirit of San Francisco. However, within the entire art ecosystem, it is these very organizations that exhibit the greatest vulnerability and uncertainty when it comes to their viability.

In this context, San Francisco has witnessed the emergence of grassroots specialized agencies actively and creatively seeking economically affordable rehearsal spaces and office facilities for such organizations. Through the integration of real estate services, financial consultation and cultural planning, the agencies have pioneered an innovative “lease to own” support model aimed at addressing the affordability crisis in the arts and culture sector.

Implementation process

The Community Arts Stabilization Trust (CAST) is a community-based non-profit real estate body, see Figure 5.2. The concept of CAST was hatched from the idea of the Northern California Community Loan Fund (NCCLF, renamed Community Vision Capital and Consulting in 2018). CAST aims to create stable physical spaces for arts and cultural organizations. Formally established in 2013 with the support of NCCLF and the Kenneth Rainin Foundation (KRF), CAST’s work involves financing, philanthropic art collections, property management, community development, technical assistance, social investment, cultural participation and policies, etc. Since its inception, CAST has grown from two employees to a team of 12, with six projects in San Francisco, Oakland and San Jose. CAST boasts affordable space with a total area of over 80,000 square feet, has raised about USD 50 million and is dedicated to providing artists and cultural workers with secure and managed spaces³.

1 WORLD CITIES CULTURE FORUM. Community Arts Stabilization Trust [EB/OL]. [2023-06-12]. http://www.worldcitiescultureforum.com/case_studies/community-arts-stabilization-trust.

2 Z. BRIAN M. COME TOGETHER: Changing Models of Arts Organizations in San Francisco [D/OL]. Middletown, CT: Wesleyan University, 2016[2023-06-18]. <https://digitalcollections.wesleyan.edu/object/ir-2396>. DOI:10.14418/wes01.2.220.

3 CAST. Community Arts Stabilization Trust [EB/OL]. [2023-06-17]. <https://cast-sf.org/>.



Source: CAST. 447 Minna [EB/OL]/447 Minna. [2023-06-17]. <https://www.447minna.com>, photo by CAST

Figure 5.2 CAST headquarters, No. 446 Minna

In response to the high housing prices in San Francisco, CAST has developed a sustainable lease-to-own model specifically for arts and cultural organizations. Over the course of a decade of practice and experimentation, CAST has used this approach to assist more than 20 arts organizations in acquiring dedicated workspaces. Furthermore, this process has helped these organizations to improve their fundraising and financial operational capabilities.

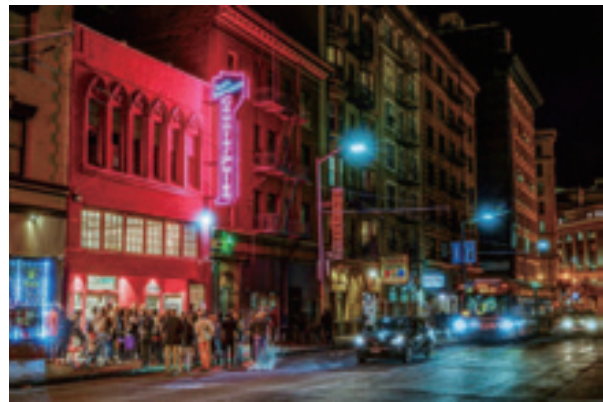
1. Lease-to-own support model

To help arts organizations that lack the funds to purchase real estate, CAST raises money to purchase buildings and leases them to arts organizations in the long term at below market rates. After an agreed period (7 ~ 10 years), the arts organization has the opportunity to purchase the property at cost price. CAST will then use the recovered capital to help other arts organizations. If the arts organization is still unable to purchase the property, CAST will extend the lease term and continue to provide them with below market rate rent. CAST refers to this model as "tenant buyback", while the World Urban Culture Forum calls this innovation the lease-to-own model¹.

CounterPulse, for example, is a San Francisco-based non-profit organization engaging in the development and performance of experimental dance art. In the early 2000s, CounterPulse rented a rehearsal

space in SoMa district for USD 1 per square foot per month. However, when CounterPulse's 10-year lease expired in February 2015, the owner doubled the rent. CounterPulse decided not to renew the lease and, with the support of CAST, relocated from SoMa to 80 Turk Street in the Tenderloin District, purchasing a space three times the size of their previous rehearsal rooms. During the negotiation process with CAST, the property owner discovered shared artistic values and visions with CAST and CounterPulse. Consequently, the owner rejected competing buyers and sold the property to CAST.

To better manage the building, CAST established a dedicated company which holds 90 percent of the shares as the manager, while CounterPulse became the tenant with a 10 percent share, see Figure 5.3. From 2016, CounterPulse began paying CAST a monthly rent of 51 cents per square foot, which increased to 59 cents per square foot in 2022, still well below market rates. After seven years of the lease agreement, if CounterPulse still can't buy out CAST, it can obtain two further lease extensions for a total of eight years. And if CounterPulse chooses to move out of the building, CAST will assist them in relocation and reserve this affordable space for other arts organizations.



Source: Scruggs, G., (2023). For Years, Philanthropy Has Been Trying To Buy Buildings For The Arts. Now We Know It Works. [EB/OL]. (2023-05-16)[2023-06-18]. <https://nextcity.org/features/for-years-philanthropy-has-been-trying-to-buy-buildings-for-the-arts.-now-w>

Figure 5.3 CounterPulse building at No. 80 Turk Street
Photo by Scott Fin

¹ World City Culture Forum. MAKING SPACE FOR CULTURE [EB/OL] (2017-08-08) [2023-06-29]. http://www.worldcitiescultureforum.com/assets/others/171020_MSFC_Report_DIGITAL.pdf.

2. Building the sustainable development capability of arts and cultural organizations

CounterPulse Executive Director Julie Phelps said in an interview, “CounterPulse’s success proves an important new model for how artists and community-based organizations can realistically afford to own their property given the right conditions – a combination of providing capital, technical assistance and capacity building¹.” The lease-to-own model created by CAST not only offers shelter for non-profit arts and cultural organizations, but also provides professional knowledge and services in aspects such as social financing, financial management, real estate management, etc. It also uses resources from the public and private sectors to improve the sustainable development capability of these organizations and help them to eventually procure property. Taking CounterPulse as an example, CAST guided the executive director in how to more effectively host a fundraising event and how to put the capital into better use after raising it.

CAST also linked arts and cultural organizations with art charity resources in private sectors. Thanks to introductions by CAST, CounterPulse has obtained grants from multiple charitable organizations such as KRF, Hewlett Foundation and Zellerbach Family Foundation. The latter not only directly donated USD 75,000, but also designed a cooperation model for CounterPulse featuring a USD 500,000 interest-free loan which provided the organization with the last sum of funds to complete property buyback².

In 2023, CounterPulse raised USD 7 million through public funding, donations, subsidies, etc. and became the 99 percent majority owner of 80 Turk St., demonstrating the effectiveness of CAST’s model. To ensure that this building will be used to support the arts and cultural industries, CAST has reserved 1 percent property management rights in the operation agreement of the

building. This will help to counterbalance the owners so that the building will not be resold to anyone but non-profit art organizations.

3. Cross-functional team leverages resources from public and private sectors

CAST believes that the prerequisite for supporting arts and cultural organizations is to ensure the sustainability of their own development and funding sources. As pointed out by CAST CEO Moy Eng, the rent should be slightly higher yet still affordable for art organizations so as to cover the operating costs of CAST more sufficiently³.

In order to enhance its operational resilience, CAST’s team composition differs from traditional property companies, emphasizing interdisciplinary and diverse expertise. Eng is a professional jazz singer, whose CAST collaborators include dancers, filmmakers and opera singers, many of whom also happen to have some experience or interest in the property market.¹⁷ This diverse team has enabled CAST to ingeniously apply the business model of real estate to serve the arts and culture sector.

To secure high-quality office space, CAST must ensure the adequacy of its own funding. To achieve this, it seeks support from both the public and private sector including KRF, the San Francisco Arts Commission and the Office of Economic and Workforce Development. Specifically, with the initial funding of USD 5 million from KRF and professional assistance from NCCLF, CAST acquired its first two buildings: CounterPulse and the Luggage Store Gallery in the SoMa district. CAST also needs to continuously build and update its list of potential funders to ensure the sustainability of its operations. As a non-profit organization, CAST faces challenges in competing for suitable buildings in the open property market. Therefore, CAST has explored various flexible approaches such as focusing on off-

1 Brown, A., 2023. New funding model gives arts groups firmer footing in downtown S.F. [EB/OL]//San Francisco Chronicle. (2023-03-10)[2023-06-19]. <https://www.sfchronicle.com/sf/article/art-funding-downtown-counterpulse-17769318.php>.

2 CAST. CAST Announces Culture Compass Map [EB/OL], (2019-01-17). [2023-06-20]. <https://cast-sf.org/cast-announces-culture-compass-map/>.

3 LONDON CITY HALL. Mayor launches groundbreaking Creative Land Trust [EB/OL]. (2019-02-06)[2023-06-19]. <https://www.london.gov.uk/press-releases/mayoral/mayor-launches-groundbreaking-creative-land-trust>.

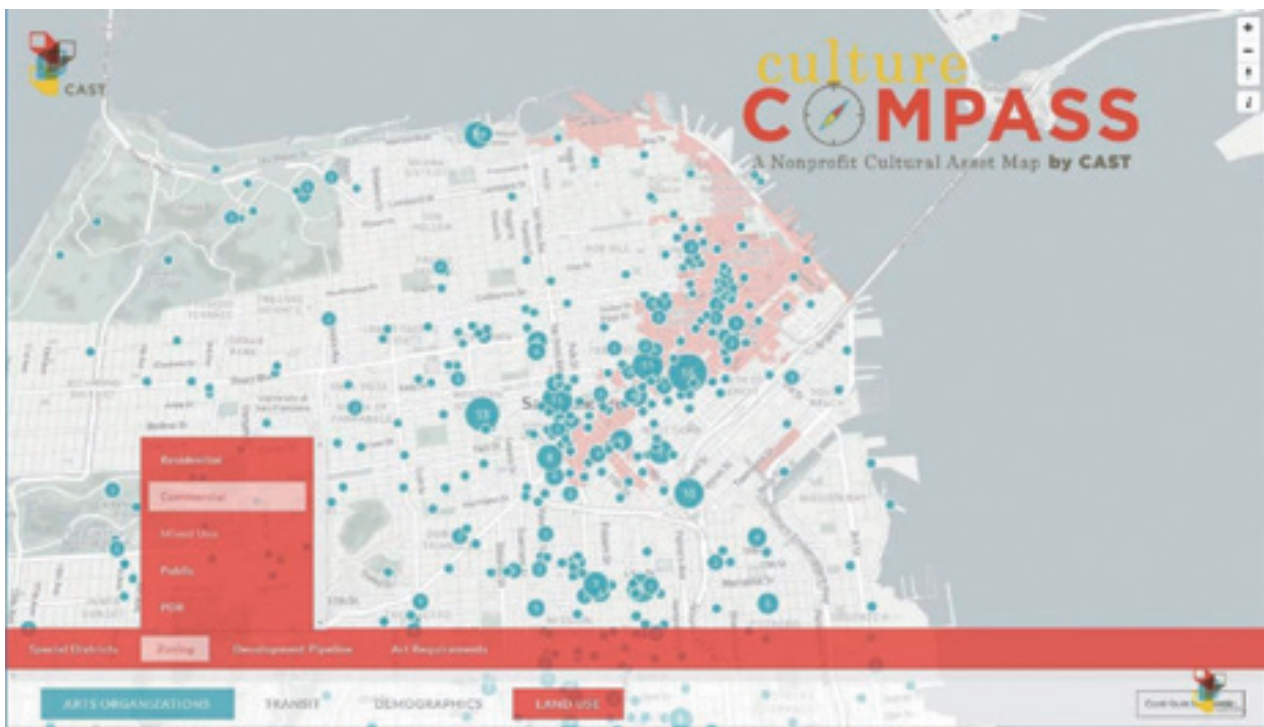
market property listings, collaborating with like-minded private developers and owners¹, or seizing market opportunities to acquire high-quality buildings.

CAST has also received support from federal policies. The government's New Markets Tax Credit programme encourages social investors to invest in eligible low-income communities, providing them with corresponding tax credits. This aligns with CAST's original intent – guiding high-quality arts and cultural organizations into low-income communities through specialized property services to revitalize local vitality and serve local residents. For example, shortly after moving into the low-income Tenderloin district, CounterPulse formulated a renovation plan to transform an old building into a dedicated performance space. They also rapidly engaged with the community through flash-mob-style art events. CounterPulse later initiated

the TenderArts programme which included mural painting, activities with local percussion enthusiasts, the establishment of a lending library, and bi-monthly arts and crafts workshops. In 2022, CounterPulse attracted 4,543 people to participate in activities in the community, promoting community vitality and economic development².

4. Cultural mapping clarifies the distribution of art spaces

In order to better connect San Francisco's property resources with cultural organizations, CAST launched a digital mapping project called Culture Compass in 2017, see Figure 5.4. This project was a collaborative effort between CAST, the data visualization design studio Stamen Design, the San Francisco Arts Commission, the Office of Economic and Workforce Development and the San Francisco Planning



Source: Cultural Heritage Finance Alliance. Case Studies in Heritage Regeneration. Doh Eain, Yangon, Myanmar [EB/OL].(2021-04). https://issuu.com/bonnieburnham/docs/case_studies_in_heritage_regeneration, photo by CAST

Figure 5.4 Culture Compass

1 CAST. Community Arts Stabilization Trust [EB/OL]. [2023-06-17]. <https://cast-sf.org/>.

2 LONDON CITY HALL. Mayor launches groundbreaking Creative Land Trust [EB/OL]. (2019-02-06)[2023-06-19]. <https://www.london.gov.uk/pressreleases/mayoral/mayor-launches-groundbreaking-creative-land-trust>.

Department, and it officially went live in 2019. The project takes the form of an interactive map which showcases the locations of 450 non-profit arts and cultural organizations in San Francisco. It provides information about each organization including their official website, founding date, financial status, ownership or leasing arrangements for their office and performance spaces, as well as the square footage of their building that is either already in use or available for use. The map combines information about these arts spaces with data on city demographics, zoning, transportation, property development, and more. This allows urban planners, policymakers, investors, artists and others to quickly grasp the distribution of arts spaces and cultural resources throughout the city. It aids them in making more effective decisions related to cultural space planning, building acquisition and functional development, among other things¹.

Through the online map, city administrators can also swiftly assess whether San Francisco's distribution of cultural resources is equitable, thereby further enhancing the development of a richer urban cultural landscape.

Reference experiences

This case demonstrates that in rapidly developing metropolises, vulnerable arts and cultural organizations urgently require multifaceted services encompassing real estate, financing and culture. This is necessary to secure stable and affordable performance and office spaces while ensuring equitable resource allocation for the arts within the community's development.

1. The lease-to-own model helps to relieve the survival stress of art in cities with overheated property markets

CAST's projects have spread to Oakland and San Jose in California, United States of America and are receiving increasing attention from cities experiencing an overheated property market. Facing similar space affordability stress for arts and cultural organizations, a dozen cities around the globe including Austin, Seattle and Vancouver in the United States of America, Sydney and London have all sought advice from CAST on initiating entities with similar functions². Based on CAST's model, London established the Creative Land Trust in 2019³, while Seattle established the Cultural Space Agency in 2021, both of which are aimed at protecting urban cultural space, building community fortune and investing in diverse cultural communities⁴.

The "lease to own" model promoted by CAST is essentially solving the problem of capital squeezing out art space. As has been pointed out by CounterPulse Executive Director Julie Phelps, fortune is both the cause of and solution to the displacement of artists. This is both a solution that can be referenced by cities experiencing excessively rapid urbanization and overheating property investment, and a model that developing cities with great potential can refer to in advance.

But there is another problem worthy of the attention of urban managers which is that this model is established on the premise of the appreciation of real estate, otherwise the benefited organizations would have to compensate for depreciated original assets⁵. The current situation has presented this problem to urban managers as the impact of the COVID-19 pandemic revealed the fragility of the urban art ecosystem, and almost all art organizations and practitioners in San Francisco faced great financial losses and the risk of displacement⁶. According to studies conducted by

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- 1 CAST. CAST Announces Culture Compass Map [EB/OL], (2019-01-17). [2023-06-20]. <https://cast-sf.org/cast-announces-culture-compass-map/>.
 - 2 World City Culture Forum. MAKING SPACE FOR CULTURE [EB/OL] (2017-08-08) [2023-06-29]. http://www.worldcitiescultureforum.com/assets/others/171020_MSFC_Report_DIGITAL.pdf.
 - 3 LONDON CITY HALL. Mayor launches groundbreaking Creative Land Trust [EB/OL]. (2019-02-06)[2023-06-19]. <https://www.london.gov.uk/pressreleases/mayoral/mayor-launches-groundbreaking-creative-land-trust>.
 - 4 ABELLO, O. P. (2021). Seattle's New Arts and Culture Development Entity Is About Power, Not Just Money [EB/OL]. (2021-01-07)[2023-06-21]. <https://nextcity.org/urbanist-news/seattles-new-arts-culture-development-entity-is-about-power-not-just-money>.
 - 5 CAST. 447 Minna [EB/OL]//447 Minna. [2023-06-17]. <https://www.447minna.com>.
 - 6 CAST. Artist and Arts Groups COVID-19 Impact Survey [R/OL]. 2020: 1[2023-06-17]. http://cast-sf.org/wp-content/uploads/2020/07/CAST_COVID-19-Impact-Survey_Results_9.3.20.pdf.

the University of Toronto, among 62 North American cities, the downtown area of San Francisco ranked last in terms of recovery after the pandemic¹. The economic fluctuation also affected the property market, resulting in the vacancies of office buildings, which prompted a new discussion of the “lease to own” model. However, as pointed out by Matthew Richter, Interim Executive Director of Seattle’s Cultural Space Agency², art organizations buying back their buildings is a surprising gain as the reclaimed capital can be used for reinvestment, although this is not what they will necessarily achieve by engaging in this business. Seattle has sufficient charity capital resources so the profitability of this model is not the key.

2. Sustainable financial aid for art requires wide local networks and steadfast diversity partners

CAST’s success relies not only on an innovative capital operation model but also on a diverse and localized funding network that involves partners from various levels and sectors including, but not limited to, local government, businesses, non-profit organizations, community groups and individual donors. This diversified funding strategy not only provides a financial safety net but also brings different perspectives and resources, enabling arts and cultural organizations to more comprehensively meet community needs. For example, the public sector in San Francisco, recognizing the potential of CAST’s projects in revitalizing communities and the economy, is willing to provide government grants, land use permits and other favourable policies. In the case of CounterPulse, San Francisco’s relevant departments were already inclined to use culture as a catalyst for urban renewal in the Tenderloin district, so they provided strong support for CounterPulse’s presence in the community.

Meanwhile, corporate sponsorship also plays an indispensable role with companies like Jensen Architects offering free design services for CounterPulse’s building renovations. This not only enhances their reputation in society but also allows

them to benefit from government-established tax incentives, creating a win-win situation through collaborative efforts.¹⁶ In other words, this diverse funding model contributes to the formation of a more robust and influential social network. When different types of organizations and individuals are dedicated to a common goal – promoting cultural and artistic development in communities – the combined strength is significant. It not only bonds cooperation and trust among various funders but also more easily sparks new creativity and solutions to address the complex and ever-changing social realities.

3. Sustainable cultural development requires the building of resilient interconnections between arts and cultural organizations and communities

To truly realize the sustainable development of culture, a resilient art and culture ecosystem is needed. The practice of CAST can be seen as an epitome of this system. As the server, guider and resource allocator, CAST has always emphasized the sustainability of its own operation, which manifests as the non-stop seeking of external partners, setting affordable rent within a reasonable range so as not to affect tenants’ survival. Only through these measures could it have provided quality services in the long term. As for arts and cultural organizations in a system that faces survival stress, CAST not only provides affordable and stable work and rehearsal spaces, but also gives technical support to forge “self-survival capability”. Most arts and cultural organizations are not familiar with the real estate industry. CAST helps them to improve their professional capabilities in terms of self-financing, financial management and property management, which greatly facilitates their long-term development. This is also thanks to CAST’s wide partnership network which helps arts organizations to contact professionals and build their capabilities. CAST, and the arts and cultural organizations it assists, enjoys a common development vision namely letting art enter low-income communities, which will not only attract more people to visit and spend money which stimulates the community’s economy but will also

1 CHAPPLE K., MOORE H., LEONG M., et al. The Death of Downtown? - Pandemic Recovery Trajectories across 62 North American Cities [J]. 2023.

2 UN-Habitat New Urban Agenda Platform. Doh Eain: Renewing Yangon [EB/OL]. <https://www.urbanagendaplatform.org/best-practice/doh-eainrenewing-yangon>.

reshape the community's image through art, letting cultural experience upgrade the quality of life. Since arts and cultural organizations have signed long-term leases and may eventually own their rented property, it is sending the neighbouring residents a message: culture and art are a part of the community and will always be here. The forming of strong bonds between the community and arts organizations will facilitate mutual support and common development between the two parties.

Yangon, Myanmar Reshaping “our home”

Case background

Yangon in the mid-south of Myanmar, is the largest city and economic centre of the country. Before Myanmar relocated its capital to Naypyidaw in 2005, Yangon had long been the country's capital. Once a British colony, Yangon has hundreds of buildings stemming from the colonial period, the most in Southeast Asia. These buildings, along with the residents, warehouses, public offices and religious buildings built by Gujarat Indians, Baghdadi Jews, Arabic Muslims, Armenians and Chinese throughout history, constitute Yangon's rich and densely distributed urban cultural heritage. After Myanmar's decolonization in 1948, almost none of this architectural heritage was properly protected or maintained. In 2011, Myanmar started to open up more to the outside world and an increasing number of companies, investors and international organizations entered Yangon to invest in its urban construction. In this tide of urban renewal, new high-end infrastructure construction and economic development projects directly resulted in the destruction and demolition of a number of historical buildings. Due to insufficient government funds, incomplete regulation and unclear building ownership, the protection of architectural heritage saw little progress. Today, about 70 percent

of the remaining 6,000 historical buildings in Yangon are residential¹ but require urgent renovation. In recent years, the NGO Yangon Heritage Trust has marked out Myanmar's central heritage areas and clarified in its heritage strategy the important role that urban cultural heritage protection plays in lasting and inclusive economic and sustainable urban development. With its vigorous publicity and promotion of successful practice cases, residents have gradually realized the true value of their historical buildings. Instead of demolishing and rebuilding, residents would prefer to renovate and refurbish their properties, however, due to a lack of professional knowledge, insufficient funds, scarcity of resources, etc., the owners can barely achieve any effective maintenance and restoration. The Yangon Heritage Trust proposes that by adopting a public-private partnership and on the premise of maintaining local characteristics, private investors should be encouraged to restore heritage buildings and use them for commercial purposes thereby forming a sustainable model of protection and restoration. Doh Eain (which means “our home” in Burmese) is a social enterprise specializing in “restoration and place making”. In close cooperation with local government and the Yangon Heritage Trust, it is devoted to restoring and renewing urban architectural heritage in the streets where Yangon citizens have lived for generations, bringing new vitality to people's homes and communities.

Implementation process

Doh Eain is a social enterprise which is active in the centre of Yangon's historic urban area. Established in 2017, it is devoted to raising people's attention and willingness to protect urban cultural heritage, and promoting the activation and utilization of Yangon's architectural heritage through the provision of services including restoration, protection, public space development, community resident cultural education and vocational training, etc.².

1 Beverley Salmon, (2021). Saving energy through retrofits of heritage properties in Myanmar [EB/OL].(2021-09). <https://www.cibsejournal.com/case-studies/saving-energy-through-retrofits-of-heritage-properties-in-myanmar/>.

2 UN-Habitat New Urban Agenda Platform. Doh Eain: Renewing Yangon [EB/OL]. <https://www.urbanagendaplatform.org/best-practice/doh-eain-renewing-yangon>.

1. Opening up financing channels and taking the lead in the one-stop restoration, activation and utilization of architectural heritage

Doh Eain adopts the new model of absorbing diversified social investment through loans and accepting stock rights transfers and grants in order to support urban cultural heritage restoration projects that are beneficial to communities and urban sustainable development. Based on these social investments, professional teams from Doh Eain provide owners with one-stop heritage building renovation, proxy renting and property management services. While bringing owners higher economic rewards, Doh Eain also gains certain a percentage of the rental income.

(1) Comprehensively using equity and loan financing to attract foreign capital

Doh Eain acts in its own capacity to sign contracts with angel investors, professional risk investors, foundation directors, government officials and family office representatives, and to acquire loans and stock rights from these investment organizations to finance urban architectural heritage restoration. From 2007 to 2021, Doh Eain acquired a total of USD 530,000 in stock rights and USD 500,000 in loans from 23 organizations in Asia and Europe¹. The length of the maturity is 3.5 years and investors can obtain a 5 percent annualized return. After repaying the principal and interest, investors can elect to invest the gained profits in Doh Eain's subsequent projects. To date, Doh Eain has enjoyed smooth cooperation with various major investment organizations and never had any breach of contract. Doh Eain spends its acquired funds on historical building restoration covering everything from property status evaluation and redesign to re-letting and property management, but it does not possess the property rights of buildings.

(2) Professional teams and historical building owners jointly restoring buildings for sustainability

Doh Eain deploys architects and engineering teams to make field visits to historical buildings that require

restoration and renovation. They determine the basic information of a building including its period of construction, architectural style, etc., in order to understand its unique value. An overall evaluation is then conducted from a technical perspective examining problems including safety hazards, load-bearing capability, water leakage, decay, daylighting, heat insulation, etc. The team also attaches great importance to interviewing the owners of the buildings, asking them to introduce its features, gaining an understanding of their living experience and renovation demands, and explaining the significance and huge economic potential of architectural heritage protection. The team issues an investigation report based on the results of "one examination for one house" and "one interview for one household", and makes detailed renovation plans according to the report.

The restoration process emphasizes the reasonable activation of the building's functions on the premise of protecting and preserving the original characteristics of the architectural heritage including teakwood structures, arch bricks, decorative wood carvings, etc. Items such as air conditioners, sanitary ware and firefighting equipment are installed to improve the building's safety and comfort. The design and construction team also pay special attention to the energy consumption of historical buildings. They improve the house's thermal insulation capabilities by replacing original single-glazing with double-glazed glass, as well as improving the ventilation, daylighting and lower lighting energy consumption by means of installing wind deflectors, adding air supply outlets, adding light pipes and light partitions, etc. Costs and environmental protection are also key considerations of the team. Through selecting local natural materials such as bamboo, wood and thatch, and reusing as many dismantled construction materials and green materials as possible, they lower the cost and energy consumption generated during material manufacture and transportation.

¹ Cultural Heritage Finance Alliance. Case Studies in Heritage Regeneration. Doh Eain, Yangon, Myanmar [EB/OL].(2021-04). https://issuu.com/bonnieburnham/docs/case_studies_in_heritage_regeneration.



Data source: Official website of Doh Eain

Figure 5.5 Architectural heritage renovation before (left) and after (right)

(3) Rewarding owners with excellent economic benefits to form an all-win cooperation model

When the restoration is complete, as shown in Figure 5.5, Doh Eain displays detailed building information on its website and adds interested parties to the waiting list. Potential tenants are mostly foreign nationals, digital nomads, etc. who are interested in local urban cultural heritage. After passing a comprehensive evaluation, Doh Eain arranges for the tenant to sign a leasing agreement with the property owner as well as a service agreement with Doh Eain. Doh Eain will collect rent on behalf of the owner and provide 5 ~ 10 years of property management services. The owner needs to pay the property management fee and enterprise social responsibility fee which amounts to 25 percent of the

rental income. Labour and material costs generated during the renovation will also be paid for by the owner in installments¹. When the contract expires, the owner can choose to either take back the property or let Doh Eain continue managing it. The monthly rent of a renovated house normally reaches three to five times the original amount. Taking an old apartment on Street 25 as an example, after Doh Eain spent four months and USD 1.3 million on restoring and renovating it, the monthly rent increased from USD 235 to USD 950. And after deducting all expenses, the owner will still receive USD 350 in income a month². To date, Doh Eain has completed the renovation of 25 historical residential buildings. Compared with letting urban architectural heritage be abandoned or dismantled,

1 Doh Eain. Doh Eain's Restoration Strategy: Responsible, Market-Driven Preservation and Urban Regeneration [EB/OL]. https://www.britishchambermyanmar.com/sites/britishchambermyanmar.com/files/publication_docs/doh_eain_introduction_-_restoration_approach_20181011.pdf.

2 Doh Eain. Heritage Homes [EB/OL]. <https://www.doheain.com/en/heritage-homes>.

Doh Eain offers owners a more attractive alternate option. Working with them enables a stable income without losing the property rights, as well as ensuring that the property gains professional restoration and maintenance. For tenants, renting houses through Doh Eain not only allows them to enjoy professional property management services but also contribute to the protection of urban cultural heritage.

2. Paying attention behind-the-scenes of urban cultural heritage and renovating public space through participation in artistic activities

In addition to the exterior renovation and interior restoration of historical urban buildings, Doh Eain is also devoted to revitalizing abandoned urban public spaces with public art projects, investing the proceeds acquired from the management of old houses into “alleyway garden” projects which contribute to the comprehensive upgrading of urban cultural heritage

both front and back, see Figure 5.6.

Century-old architectural heritage buildings appear to have a charming and graceful bearing, but the passageways running behind them have been jeopardizing residents' health and the community's appearance. Rubbish was being thrown out of overhead windows but not being cleared up. It had piled up at the backs of the buildings, and the narrow alleys became infested with insects and rats making them a breeding ground for disease. In 2016, in response to this persistent problem, Doh Eain transformed an alleyway into a small garden, showing the residents the magic of turning waste space into a cherished area. Upon its completion in early 2017, the little garden went viral on social media, becoming a popular photo spot. In 2018, sponsored by the Danish Embassy, Doh Eain initiated a space transformation project in 41 back alleyways in Chinatown. After carrying out rubbish clearing and



Source: <https://www.lonelyplanet.com/news/yan-gon-organisation-cleaning-up-city>

Figure 5.6 A girl plays on a swing in a renovated alley

disinfection, Doh Eain invited artists from all over the world to work with local residents to graffiti the walls of the alleys. Residents used lines and colours to tell stories of the community through the graffiti, while also conveying their hopes and aspirations for the future of the city.

After further planning and renovation, the passageways were completely transformed creating a new multifunctional neighbourhood. The previously rubbish-strewn and mosquito-infested alleyways are now public places for residents to rest, communicate and interact with each other, with recreational facilities for children and for exercise, open-air cafes, urban agriculture, street art space and so on. The alleyways renovation project received wide participation and recognition from local citizens who contributed 20 percent of the cost and assumed responsibility for its subsequent maintenance and management. The renovated passageways have not only greatly improved the surrounding environment, but have also attracted a large number of tourists. Several residents turned the first floor of their houses into shops or souvenir stores which has brought them considerable economic returns.

3. Taking advantage of in-depth experiential activities to promote wider attention and public participation in cultural heritage preservation

In order to demonstrate the results of renovation, enhance public participation in cultural heritage preservation activities and develop inheritors of architectural heritage restoration, Doh Eain has launched a series of tours and skills training courses for the general public.

(1) Walking tours through an architectural complex boasting abundant cultural heritage

Bogalay Zay Street is a rare find in Yangon in which many of the colonial buildings are still standing. Today it is home to a selection of family stores, state of the art restaurants and residential communities. The walking tour begins with a visit to Doh Eain's office where the staff introduce visitors to the significance of cultural heritage and renovation success stories. Visitors are also invited to debate how to give more play to the role of urban cultural heritage. They are then guided around the colonial buildings including landmarks such as the secretariat, to experience the unique blend

of urban cultural heritage and contemporary life, as well as appreciating the renovated and refurbished old buildings, see Figure 5.7. The registration fee for the walking tour is entirely used for the urban cultural heritage preservation programme.



Source: Official website of Doh Eain

Figure 5.7 Visitors at Yangon's architectural heritage blocks

(2) Organization of "Impact Days"

Doh Eain organizes Impact Days for staff from enterprises, NGOs, embassies and schools. Participants walk into architectural heritage complexes, back streets and alleyways where they can take part in activities such as contributing to artworks, building street furniture and planting shrubs. This engaging and interesting experience stimulates the participants' interest in the preservation and renovation of historic blocks, capturing their imagination. Following the Impact Day, many participants apply to be volunteers in the preservation and renovation of historic blocks or support community renovation through donations.

(3) Implementation of the "Young City Shapers" Programme

In order to promote the inheritance of skills for the renovation of local architectural heritage and call upon more young people to participate in cultural heritage preservation, Doh Eain, with the assistance of professionals and governmental departments, has launched a series of courses which aim to impart professional knowledge and skills to young people in historic urban area planning, architectural heritage renovation, public space design and the adaptive reuse of cultural heritage. At the end of the programme, enterprises offer hands-on opportunities for young people. They

can then apply what they have acquired from the coursework in the old city, which in turn contributes to the sustainable development of cultural heritage preservation.

Reference experiences

The Yangon case is an important example of historic building regeneration led by social enterprise, and is notable for the effective collaboration between the professional teams and the owners of old houses. As the former provides funds and design solutions and the latter allow the temporary use of the historic architecture as well as gaining direct financial benefits as a result, the two parties are deeply involved in the process, jointly contributing to efficient heritage revitalization.

1. Professional and efficient social enterprises offer multi-channel financing to help the government alleviate funding challenges

The top-down system for cultural heritage preservation could hardly function as it was plagued by regime change, policymaking delays and a lack of funding and technical expertise. Under these circumstances, the role of social enterprises came to the fore. Doh Eain diversified its sources of income by opening up multiple financing channels, selling property management services, creating tourism routes and so on, the economic returns of which were used as incentives to help residents understand that urban cultural heritage is not a “burden” but an important cause that combines economic and social values. A consensus was therefore reached on the value of cultural heritage preservation at the grassroots level. After 2021, professional designers and architectural teams were invited to renew architectural heritage in a green and sustainable way so as to achieve energy conservation and cost optimization. This case offers a good example for cities with a large number of cultural heritage sites, where heritage preservation and management generate huge pressure on public finance.

2. The participatory approach helps to raise cultural heritage preservation awareness amongst the general public

Local residents are the core force in the preservation

and regeneration of historic and cultural blocks. Extensive and in-depth public participation not only guarantees the smooth progress of urban cultural heritage renovation and upgrading, but also plays an important role in the subsequent maintenance and management. Doh Eain sticks to the “people-oriented” concept and focuses on designing for people, working with people and building human capacity. In the process of cultural heritage renovation and alleyway restoration, local residents were invited to participate in the design, implementation and management of the programme. Their opinions were listened to, requirements taken into account, wishes respected and expectations satisfied. Inclusiveness is a key principle that Doh Eain highlights as it strives to promote the equal participation of girls, women, the disadvantaged, the elderly, ethnic minorities and religious groups in all its programmes, activities and training courses. Only by upholding the principles of inclusiveness and equality can social enterprises form a partnership based on mutual trust with local residents thereby stimulating the enthusiasm of all the people to participate in cultural heritage preservation, and facilitate the exploration of the value of urban cultural heritage and its adaptive use.

3. Proceeds from architectural heritage regeneration being fed into public space helps to reshape the urban landscape

High-quality public space is an important tool for improving the quality of urban life and boosting people's physical and mental health. Yangon is one of the cities in Southeast Asia with the least amount of public space per capita. At present, the average public space for Yangon citizens is only 0.37m² per capita in contrast to Bangkok's 8.5m² and Paris's 30m².²⁸ To address this predicament, Doh Eain tried to use arts to bridge interpersonal relationships and alleviate urban contradictions: a variety of artistic elements were introduced to renovate the dirty, messy and dilapidated historic and cultural blocks, and a number of high-quality public places were developed that were close to life, multi-functional and showed a good combination of humanity and nature. In this process, Doh Eain not only fed part of the proceeds of old building renovation and housing management into public space development in the neighbourhood, but also guided residents to create collective memories and build a

new image of the community so as to enhance their sense of participation and belonging in community affairs. In just a few years, Doh Eain had helped local residents to clean up and decorate 12 alleyways, restore two historic blocks and build three recreational areas and public parks. Over 15,000m² of derelict or neglected space was put into public use again.³⁰ Today, Myanmar is undergoing a transformation. In the past, migrants who ran small businesses here often tramped the streets of Yangon having nowhere else to go, but now passageway gardens and other public art space offers them a spiritual refuge. In addition, the upgraded historic blocks drive the standards of artistic life and the tourism economy, which greatly enriches the physical and mental health of local residents, as well as their income.

Nanjing, China Micro-renovation of Xiaoxihu Block

Case background

Nanjing, known as the “Ancient Capital of the Six Dynasties” in China, is rich in historical heritage and cultural deposits. Covering an area of 46,900m², Xiaoxihu Block (hereinafter referred to as Xiaoxihu) is located within Dayoufang Alley Historical Area with Gutong Alley in the east, Madao Street in the south, Dayoufang Alley in the west and Xiaoxihu Street in the north. According to historical records, there was once a river in the area which was filled in. Though the river is now nowhere to be seen, seven historical streets and alleyways still exist plus seven historic buildings and two organizations for cultural heritage preservation. It is one of the few residential neighbourhoods to have retained its appearance from the ancient Ming and Qing Dynasties.

In 2013, the East Zhonghua Gate Historical Culture Block, which borders with Xiaoxihu, was officially opened to the public after extensive renovation. A large number of programmes were also launched there integrating culture, tourism and businesses which attracted numerous tourists from home and abroad. These tourists also visited Xiaoxihu, but to their surprise, although adjacent to the prosperous East

Zhonghua Gate, they found a shantytown of narrow alleyways, dilapidated buildings and illegal structures. About 3,000 people from 810 households and 25 factories and enterprises were working and living in Xiaoxihu, in crumbling houses with shared kitchens and bathrooms.

Xiaoxihu residents contacted the city administrators and expressed their eagerness to improve their living environment. They didn't want to live in a place where historical memories had been formed but that was no longer safe to stay in, however, they were reluctant to leave their cherished homes. And nor did they want to tarnish Nanjing's overall image by leading visitors to mistakenly believe that the old city was still old-fashioned and cramped.

As Xiaoxihu was full of historic heritage with a large residential area to preserve, micro-renovation seemed the most appropriate way to realize urban renewal with efforts made to achieve a balanced coexistence between traditional historical features and modern life. Different from costly overall blanket reconstruction, micro-renovation focuses on small-scale interventions that enhance the quality of the urban environment in increments. The Xiaoxihu Micro-renovation Project was officially launched in 2015 and by 2021 many results had already been achieved. In 2022, the project won the UNESCO Asia-Pacific Heritage Award for Cultural Heritage Conservation as it neither abandoned the historical and cultural elements of Nanjing nor ignored the local residents' longing for a better life.

This case demonstrates, most importantly, the value of a people-oriented concept with in-depth research and multi-party cooperation in the promotion of urban renewal projects. Through full communication with the government, enterprises and residents not only explored methods for renovating historic blocks in a small-scale and progressive way, but also developed a sustainable financing solution featuring co-financing and self-determined renewal.

Implementation process

Nanjing Historic City Protection and Construction Group Co., Ltd. (NHCPG) is responsible for reconstruction in

Xiaoxihu with the Architectural Design and Research Institute of Southeast University in charge of research and design. Both were faced with the dual task of preserving historic features and updating the area.

Before any renovation began, NHCPG, in cooperation with Nanjing, Southeast and Nanjing Tech universities, asked volunteer students to conduct household surveys. Their research showed that a considerable number of local residents, especially the elderly, were not willing to leave the neighbourhood but that they were truly suffering in poor living conditions. After several rounds of discussions, NHCPG determined a micro-renovation plan that prioritized local residents' willingness to make changes and gradually promoted self-determined continuous and organic renewal.

1. Voluntary and progressive house expropriation

One of the biggest challenges in Xiaoxihu was how to balance the interests of multiple parties in promoting preservation and renewal. To enable restoration and increase infrastructure and public facilities, it was necessary to relocate part of the community, however, there were complicated ownership relationships within the historical building lots. Following the surveys, the Xiaoxihu Micro-renovation Project developed a "voluntary and progressive" expropriation and relocation policy by dividing Xiaoxihu into more than 100 compounds and buildings. Residents in the same compound or building then discussed with each other whether to move from their homes or stay. And only when all residents in a building agreed to relocate would NHCPG start expropriation.

Southeast University's design team developed a typological map of land and housing property information which clearly showed the property rights of each building, room and courtyard. The map became a useful tool for designers and staff responsible for expropriation to communicate with residents. A continuously updated list of "residents' relocation willingness" was formed through constant dialogue

and respect for residents' wishes. By August 2019, 408 households had been relocated, accounting for about 51 percent of the total. The necessary amount of voluntary relocation had basically been reached¹. Residents of buildings which had not reached a consensus on relocation can still choose to move out individually, of course, helping towards the expropriation process.

The voluntary relocation meant the renovations in Xiaoxihu could begin. In order to improve living standards, the design team first introduced "pipeline corridors", grouping together pipes for gas, water supply, sewage discharge, telecommunications, etc., leaving space for construction teams to carry out renovations without repeatedly needing to dig up the ground. Each household has access to the supplies through a reserved interface remarking that "having the pipeline corridor is like having a subway station next to my house. It's so convenient²." After the renovation, the residents were freed from the worry of rainwater runoff and sewage disposal mixing or having no outlet.

2. Multi-party financing channels

According to the *Guidelines for the Implementation and Management of the Micro-renovation Planning Scheme for Xiaoxihu Historic Lot in Southern Old Town* formulated by the Nanjing Municipal Government, the Xiaoxihu Micro-renovation Project offered a set of processes for private property owners to voluntarily initiate renewal of their houses, which not only involved the residents in the whole process of heritage renewal in a convenient way, but also arranged the granting of renovation funds in a fair and orderly manner, see Figure 5.8.

Residents who chose to stay in their building could apply for heritage renewal following set procedures, with the government, service providers and owners working together to complete the renovation. Private property owners wanting to restore their houses had to submit a written application to the "community

1 Yinan, D., Dongqing, H., Jie, H. On the Process and Participation of Urban Design from the Case of the Small-scale and Progressive Conservation and Regeneration of the Nanjing Xiaoxihu Historical Block [J]. *Time Architecture*, 2021(01): 51–55. DOI:10.13717/j.cnki.ta.2021.01.010.

2 Chang, L. What Makes the Renovation of An Old Neighbourhood Near Nanjing Confucius Temple Win the United Nations Award for New Design in Heritage Contexts? [EB/OL]. (2022-12-14) [2023-06-08]. <https://www.shobserver.com/wx/detail.do?id=558068>.



Source: Nanjing Historic City Protection and Construction Group Co., Ltd.

Figure 5.8 A passageway after renovation

planner”, which would be released to the public once checked and confirmed. Community planner, a new professional position created for the Xiaoxihu Micro-renovation Project, refers to a person with a background in ancient architecture, construction, planning, cultural relics and other related profession who is passionate about community building, appointed by the Nanjing Municipal Bureau of Planning and Natural Resources through open recruitment. Once the renewal application is approved, the property owner submits an application to the Nanjing Municipal Bureau of Planning and Natural Resources. And if granted, the property owner can then commission a company to make a design plan.

The renovation cost of private houses is generally borne by the property owner with a qualified professional organizations first identifying the degree of necessary reconstruction. If the house is a C or D class dilapidated building, the floor area may need to be expanded due to added infrastructure during the renovation. For those whose floor area increases by 5 percent (inclusive), the renovation cost is subsidized by Nanjing municipality and district finance; the renovation cost for a C class dilapidated building is borne by Nanjing municipality, district finance and the

property owner at a ratio of 2:2:6, while the renovation cost for a D class dilapidated building is borne by Nanjing municipality, district finance and the property owner at a ratio of 3:3:4.

3. “One house, one plan” renovation programme

Residents who chose to renew their houses asked the community planners to come up with a unique design according to the wishes of each family and the characteristics of their home. As NHPCPG Office Director Li Ying said, “It’s like the documentary programme Dream Home in which each designer takes the drawings to show the residents, and keeps putting forward new designs and making changes according to their requirements. So there are often a dozen or so drafts until the residents are satisfied.” This has led to some distinctive renovation cases.

(1) Co-sharing courtyard, see Figure 5.9. Mr. Liu who lived at No. 33 Duicao Alley asked for a wall to be repaired. His house was located on the main street of Xiaoxihu and the enclosing wall had been in disrepair for many years and posed potential safety hazards. Through the subsequent communication, both parties gradually reached a consensus on transforming his courtyard into a shared area. Firstly, the enclosing wall would be refurbished



Source: Nanjing Historic City Protection and Construction Group Co., Ltd
Figure 5.9 Co-sharing courtyard before renovation (left) and after (right)

into a well-designed hollowed-out wall so that passers-by could see the flowers and greenery planted by Mr. Liu; and secondly, by opening the door of the courtyard all year round, the originally enclosed area would be transformed into a space where neighbours could sit and visitors would have the opportunity to experience local culture and life. Speaking of the courtyard, Mr. Liu said, "I sit in the back yard when I want to see people, and go into my house when I want to rest. I'm completely undisturbed." A perfect solution!

(2) Co-living courtyard, see Figure 5.10. Most of the residents of No. 31 Duicao Alley decided to relocate but there were still two elderly house owners who wanted to stay in their buildings. Taking into consideration that

the adjoining courtyard was located off the main street of Xiaoxihu, the designer came up with a suggestion. While fully respecting the residents' wishes, functional facilities such as kitchens and bathrooms were added to the houses as well as renovating the outdoor area for their communal use.

The community planners used a vacant house as their office where the renewal application process and renovation drawings hung on the walls, allowing the residents to continuously update and monitor the renovation plans with the designers.

(3) Resettlement apartment. After all the residents moved out voluntarily, NHPCPG maintained the



Source: Nanjing Historic City Protection and Construction Group Co., Ltd. (left); photographed by document preparation team (right)
Figure 5.10 Co-living courtyard before renovation (left) and after (right)

structure of the exposed walls of an old three-story public building in Xiaoxihu and transformed what had been 19 old houses of 45m² into 24 apartments ranging from 25m² to 60m², all equipped with independent bathrooms, kitchens and other supporting facilities.

4. Cultural businesses for life

In terms of buildings where owners had collectively moved out, a second phase was to introduce new businesses to add some much needed vitality. NHPCPG looked for suitable businesses under the premise of them not disrupting other residents' lives. A boutique bed and breakfast, Qinhuai Lantern Museum (an intangible cultural heritage workshop), Corner Café,

"Wo Shi Mi" Murder Mystery Game and Huanle (Joyful) Teahouse offering small shows were all subsequently opened in Xiaoxihu.

There was also a century-old elementary school in the area – Xiaoxihu Elementary School. One of the school gates faced the inner alleyways of the block but it had not been used for decades. The design team facilitated the reopening of the gate giving the children full access to the alleyways thus adding more life to the area.

In order to attract more families, the Bug Museum, a miniature museum of natural history with an area of less than 200m², was opened in Xiaoxihu as shown in Figure 5.11. The interior was designed like a "wormhole"



Source: Photographed by document preparation team

Figure 5.11 Exterior of the Bug Museum (top left), cave-like exhibition space (top right) and inner courtyard (bottom)

and the curators share their profound knowledge of insects using simple language, attracting numerous young audience members and parent-child tourists. The museum brings children closer to nature by sharing the charms of the natural world with them.

The first phase of the Xiaoxihu Micro-renovation Project was completed in 2021, but renovations continue. NHCPCG is still accepting applications from residents moving out and for self-determined renewal. And more efforts have been made to explore the cultural facets of this historic area. For example, No. 31 Gutong Alley was the former residence of the Wan brothers who created celebrated animated films in the 1960s such as *The Monkey King: Uproun in Heaven*. The Wans were deeply influenced by traditional cultural styles such as paper cutting, shadow puppets and sugar figure blowing from Nanjing Confucius Temple (Fuzimiao). In the future, NHCPCG is going to cooperate with the Shanghai Animation Film Studio to explore ways to introduce an animation intellectual property scene experience on the basis of architectural heritage preservation so that visitors can have an even more diversified cultural experience.

Reference experiences

The value of the Xiaoxihu Micro-renovation Project lies in its voluntary and progressive relocation policy. As a “self-determined renewal” model is employed during the process, the locals feel that their personal wishes are fully respected and their strong emotional connection with their historical building, regardless of whether they choose to leave or stay, is upheld. It is on this basis that a trusting partnership has been forged between local government, the organizations responsible for promoting the renovation, and the community to improve the efficiency of urban renewal, which has also helped to create a new financing model for the renovation and upgrading of historical buildings.

1. The beneficiary-pays financing model helps to stabilize the co-building mechanism of government, residents and enterprises

If the Xiaoxihu model is to be replicated, the first thing that needs to be considered is funding, and the core concept that can be drawn from this case is that “whoever benefits pays”. For local government, sources of funds can be divided according to the logical order

of “public interest – residents’ interest – corporate interest”. As far as public interest is concerned, the renovation of public areas and ancillary facilities in Xiaoxihu is a livelihood issue that the government should rightly address as the renovated historic urban area not only improves the living environment, but also optimizes the image of the city. It is therefore reasonable that the government covers this part of the budget. As far as residents’ interest is concerned, those who choose to stay in Xiaoxihu can apply for the self-determined renewal and renovation of their own houses. Renovated private houses are safer, more livable and more attractive, and either self-occupation or renting will benefit the owners. Therefore, it is fair for residents to bear the renovation cost. Given that some dilapidated historic buildings pose safety hazards and affect the overall image of the district, however, and that the cost of their renovation is high, it is also reasonable that the government covers part of the cost in order to realize holistic preservation and appreciation of the whole block. Finally, organizations participating in renewal can generate revenue by collecting rent from commercial entities, thus recovering their investment in the renovation.

2. A conservation approach that emphasizes both heritage and people helps to preserve the continuity of the urban fabric

The essence of urban renewal is to improve the well-being of residents, therefore it should be people-centred to make sure that the transformation does not alienate those who originally lived there. The Xiaoxihu Micro-renovation Project demonstrates the possibility of retaining residents and helping them to coexist with heritage by building a mechanism for residents to fully participate in the renewal process.

Specific initiatives for residents to participate in the whole process include three aspects: before the transformation, the planners conduct in-depth surveys with residents; during the transformation, the planners formulate a design scheme with the residents; and after the transformation, residents and tourists benefit from the newly created cultural interest. By participating in the entire process, residents of historic blocks are likely to gain a deeper understanding of the purpose and benefits of renewal and renovation, have more trust in the public planners, designers and builders, further

integrate their daily lives with the renewal of heritage and become truly engaged with the past and future of their neighbourhood. Such deep integration is the most attractive part of a city's local culture and creates the greatest sense of belonging.

3. Small-scale revitalization helps to achieve the sustainable regeneration of historic districts

To avoid affecting the community living in the historic district, the Xiaoxihu Micro-renovation Project adopted the model of small-scale advancement and sustainable regeneration. Small-scale advancement refers to dividing the historic district into smaller units, where small areas like a courtyard or house can be renovated if their owners agree and the conditions allow it. The advantages of such an approach are first and foremost that it does not disrupt the lives of people throughout the neighbourhood. Secondly, it allows for trial and error on a small scale. The development of both transformation technologies and lifestyles will bring more solutions to urban renewal, and small-scale

advancement is conducive to adapting to changes over time on a larger scale. Finally, small improvements require less initial capital than large-scale upgrades, making it a more viable option for local governments or private developers with limited budgets. By the time the renewal projects are completed, these areas should be more attractive, bringing economic benefits and new investment.

Small-scale advancement also means that the entire block becomes sustainable and renewable. Although the Xiaoxihu Micro-renovation Project has completed the restoration of some old houses and already introduced new businesses, this does not mark the end of the project. Remaining residents can still start the refurbishment of their houses at any time following the due process. Once there are new spaces, various operators will bring new businesses and cultural services to the neighbourhood – a dynamic process of building a neighbourhood that can grow sustainably.

Hamburg, Germany Hamburg Crowdfunding Platform: helping micro and small enterprises of cultural and creative industries get started

Most micro and small projects in cultural and creative industries face difficulties obtaining funds from traditional financing channels. The main reason is that practitioners in cultural and creative industries often lack tangible assets that can be used as collateral, and most are insufficiently aware of capital operations and unfamiliar with financing tools. In recent years, crowdfunding has gradually become an effective way to raise start-up capital for cultural and creative projects.

In 2011, the city-funded Hamburg Creative Association (Hamburg Kreativ Gesellschaft, HKG) launched Nordstarter in cooperation with Startnext. Startnext is a German crowdfunding platform with extensive operating experience in unlimited fields, whose background in crowdfunding combined with the expertise of HKG led to the creation of Nordstarter, a crowdfunding community focused

on serving micro and small projects in cultural and creative industries.

Crowdfunding adopts the mode of “all or nothing” that is, the creators or holders of film and television dramas, games, design objects, applications, radio dramas, publications, exhibitions, cultural events and other items can log in to Nordstarter and set a minimum amount of crowdfunding for their project. If the minimum funding amount from public donations is reached within the time limit, the crowdfunding is declared a success and the project holder receives the funding; otherwise, the crowdfunding is declared a failure and any money raised is returned to the backers. Successful crowdfunding project holders are required to pay 4 percent of the total amount raised to the organization as a service fee. As for Nordstarter, project holders can choose to pay a “voluntary commission” according to their ability, which generally ranges from

0 to 3 percent¹. To date, Nordstarter has crowdfunded EUR 3.577 million for 617 projects².

Unlike other general crowdfunding websites, Nordstarter is based on the resources of HKG and provides project holders with a series of professional supporting services such as incubation and training related to the cultural and creative industries. Project holders can participate in the Crowdfunding Club and receive coaching on how to improve their crowdfunding skills, as well as access to a wide range of industry partnerships and other sources of funding through the platform. Overall, the platform provides “crowdfunding + incubation” services to help cultural and creative practitioners start from micro and small projects and steadily proceed to establishing companies, accelerating their entry into the cultural and creative

industries. After its success in Hamburg, Germany the model gradually spread to other German cities including Berlin, Bremen and Dresden.

Crowdfunding has become an effective and mature financing model for the cultural and creative sector. From a sustainability perspective, the advantage of the crowdfunding model is that it not only raises small amounts of start-up capital for cultural and creative entrepreneurs, but also increases stakeholder participation. More importantly, successful crowdfunding projects can release signals to traditional investors and the financial industry about the market potential of specific cultural and creative products and projects, and promote a greater flow of traditional investment into the cultural and creative sector.

Policy suggestions

1. Build an ecosystem for cultural financing from multiple sources

The ecosystem should not only include multiple contributors, such as the government, enterprises and residents, but also develop diversified financing and funding modes: (1) adopt a mixed investment and financing strategy: develop a variety of financing channels such as government grants, corporate sponsorships, crowdfunding and charitable donations. The government should set up seed funds and provide tax incentives or other means to encourage private enterprises and individuals to participate in the funding of cultural projects; (2) pursue innovation in financing tools: introduce innovative financing tools such as cultural bonds and social impact bonds, allowing funds to be raised through the capital market to support cultural projects. Such bonds can yield financial returns to investors while providing the necessary funds for cultural development; (3) strengthen

capacity-building and knowledge-sharing: a platform should be established to enable cultural organizations and artists to share resources, knowledge and best practices. It can provide training, workshops and seminars to help cultural practitioners to improve their abilities and discover new financing channels; and (4) promote community participation and citizen funding: encourage residents to participate in the financing of cultural projects through small donations or contributions of time. Specific community funds can be set up to facilitate residents in supporting the local cultural projects that they care about. Through such an integrated cultural financing ecosystem, cities can provide more stable and diverse sources of funding for cultural development, while strengthening community participation and recognition of cultural values.

2. Make good use of government matching funds to guide the flow of funds

The government should play a guiding and balancing role in the cultural financing ecosystem, in particular by allocating public funding and mobilizing social capital flow to underdeveloped communities, areas and groups

1 The partnership of Hamburg Kreativ Gesellschaft and StartNext: Nordstarter [EB/OL]. (2023-06-20). <https://www.crowdfunding4culture.eu/sites/default/files/Nordstarter.pdf>.

2 Nordstarter – Dein kreatives Projekt aus Hamburg [EB/OL]. (2023-06-23). <https://www.startnext.com/pages/nordstarter>.

in the formulation of cultural investment policies. To this end, the government can make reference to Singapore's CMF case and build a government matching fund with similar functions. This type of fund can precisely help vulnerable groups and weak links in the cultural field by setting up conditions (such as specific areas, performances or regions) to ensure that those most in need of support (such as cultural projects for minority groups, arts education in underdeveloped communities, or emerging artists and groups) receive adequate attention and dedicated resources. Besides the equitable distribution of public funds, government matching funds can also channel more social capital to targeted areas. It is worth noting that CMF, while allocating public funds, sends a strong signal to society to actively contribute to the arts and cultural sector, and also effectively promotes the self-financing capacity of non-profit arts and cultural organizations. Such a multi-effect solution is worth learning.

3. Flexibly resolve the affordability crisis of cultural spaces

The government needs to adopt a variety of strategies to ensure that artists and cultural organizations have access to long-term, stable and affordable work and rehearsal spaces. Among the many possible strategies, the "lease to own" model adopted in the case of CAST in San Francisco, United States of America, shows great potential for application. The government can actively work with the private sector to set up a non-profit professional body, providing comprehensive consultancy services to cultural organizations across the property and cultural spectrum, including identifying suitable buildings, providing long-term affordable lease agreements for disadvantaged artists and cultural organizations, and even encouraging leaseholders to purchase properties at suitable prices for a limited period. The advantage of this approach is that by reducing the initial entry cost, cultural organizations can have enough time and resources to stabilize and develop their businesses. This provides them with a progressive path: obtain a space through leasing before finally obtaining their own property. However, "lease to own" is only one facet of addressing the crisis of cultural space affordability. To ensure the success of this strategy, the government needs to consider the following additional measures: providing loans or subsidies to eligible cultural organizations to help them cope with the costs of leasing or purchasing

space; formulating flexible land-use and planning policies to create more space suitable for cultural organizations, such as converting unused industrial areas into art studios; and attracting the private sector to provide support for cultural space through tax concessions, development rights and other incentives.

4. Redefine the cultural participation of residents and communities

Traditionally, cultural participation refers to individuals or communities viewing and experiencing arts and cultural activities, either virtually or physically, or actively participating in cultural creation and performance. However, an increasing number of cases of urban practice show that the substantive connotations of cultural participation have gradually evolved as citizens and communities aspire for a better life and sustainable development. Whether it is the restoration and renovation of urban cultural heritage, or the survival and development of important arts and cultural organizations, they all depend on the support and help of urban residents and communities as the audience. The Xiaoxihu Micro-renovation Project in Nanjing, China and the adaptive re-use of old houses in Yangon, Myanmar although led by the governments and enterprises, fully complied with the wishes of the homeowners and residents, who gave full play to the initiative and became contributors to the urban fabric. In other words, cultural donation is another important form of cultural participation, which includes individual and community financial support for cultural heritage, sponsorship of cultural activities, donations of works of art and direct donations to various cultural institutions and artistic projects, and it should be encouraged and promoted. This kind of cultural donation not only provides significant financial support, but also displays the cultural identity and values of individuals and communities. Through cultural donation, citizens and communities can actively participate in shaping the cultural landscape of the city and contribute to its prosperity and sustainability. Government and relevant organizations should encourage cultural donation and provide support and guidance to citizens and communities, including strengthening publicity and education on cultural donation, establishing transparent and effective donation channels, and providing corresponding incentives and preferential policies.

Chapter 6

Governance: cross-regional governance and multi-dimensional shared cities



Introduction¹

The global development landscape has never been more challenging. In the context of uncertain factors such as epidemics, floods and international conflicts, as well as regional development inequality and the inefficient use of resources, the traditional single governance model cannot adapt to the complex and changeable social environment, and the sustainable development model is struggling. An ideal urban life should not be based on closed spaces, resource monopoly and community isolation². Therefore, the greatest concerns at present are to improve governance efficiency, optimize the allocation of urban resources and more effectively support urban development goals.

As cities contribute more than 80 percent of China's GDP and accommodate more than half of the population, urban governance is almost directly related to China's development path³. However, a city's population, capital, technology, data, space and other resources are ultimately limited, and this is why the "shared city" concept was put forward. In 2016, the United Nations released its New Urban Agenda with shared city as the central concept, calling for no one to be left behind. In 2019, China also proposed the concept of the "people's city", emphasizing that "a people's city is built by the people and for the people".

As regional economic integration deepens and public issues become increasingly prominent, however, the traditional governance model is no longer adequate for addressing complex regional public issues. Limited by factors such as administrative divisions and management system settings⁴, inter-regional resource cooperation and sharing still face significant obstacles, calling for the urgent need for cross-regional governance mechanisms. With multiple stakeholders and elements participating in urban governance, cross-regional governance can achieve holistic regional development by effective integration of various stakeholders and resources, which is conducive to complementary advantages and reducing inter-regional inequality⁵.

The term "city" in "shared city" has broad references which include regional, urban and community dimensions. But what can we do to improve urban governance and resource sharing? Firstly, a governance system that is interconnected across regions at the global level should be established. Many regions have started to build cooperation, mutual assistance and interregional interest compensation mechanisms. Another requirement is to adhere to co-construction, co-governance and sharing to form a new pattern of urban governance allowing multiple subjects to participate in and promote governance in various ways to benefit more people equally. Specific measures include internal incentives for the integration of governance resources, effective connections between different levels, guidance for the orderly flow of resources and better ways to resolve social conflicts.

How can concrete actions be taken to enhance the quality of urban governance? The first case presents the Top Technology Region – Eindhoven-Leuven-Aachen triangle (TTR-ELAt) in which cooperation involves Belgium, Germany and the Kingdom of the Netherlands. The sharing and spillover of cross-border complementary expertise

1 Authors of this chapter include: Peng Zhenwei, Chen Chen, Huang Yi, Zhong Xiaohua and Cao Zhan of Tongji University, and UN-Habitat. The case of Seoul and the case of Mexico City were provided by UN-Habitat.

2 Wu Qinghua, Shared Blocks: Practical Principles and Paths of Urban Space Governance. [J]. Journal of Socialist Theory Guide, 2017. (07): 9–12.

3 The Practice of Innovative Theory. Wisdom, Mechanisms and Experience in Governance: The Rationale for the Modernization of Urban Governance. URL: <https://mp.weixin.qq.com/s/ZCz1Br8j31kNYjXw-avMOg>.

4 Cross-regional governance and government cooperation: experiences, challenges and solutions. URL: <https://mp.weixin.qq.com/s/fQuZGksTdSCrmi9nzXEtaQ>.

5 Enhance endogenous motivation and leverage overall advantages: strengthen the integration of social governance resources at municipal level (the way of governance). URL: <https://mp.weixin.qq.com/s/bO3jTozFN8EldgNoCn7f5Q>.

facilitates the exertion of the externality of regional agglomeration and enhances the region's attractiveness to high-end talents, cohesion of cooperation and sharing, and competitiveness of technological innovation¹. Secondly, China's Yangtze River Delta G60 Sci-tech Innovation Corridor is demonstrated which connects the sci-tech innovation corridors of multiple hub cities through major transportation channels. It gathers and accelerates links spatially through scientific and technological innovation resources, optimizes the governance logic of regional innovation and development, and demonstrates the power of cross-domain planning and resource integration. The third case of Seoul's Smart City Platform highlights the impact of integrating smart-city technology into governance; a core infrastructure component that can manage a variety of urban conditions, tailor digital services for vulnerable groups, and improve urban inclusiveness and equity through the digitization of public services. The fourth case highlights Mexico City's Tianguis Digital platform, a system that publishes public procurement information through open data and open contract systems, and records, executes and monitors public procurement processes in accordance with the principles of openness, transparency and accountability ensuring better goods and services for all and increasing citizen participation. The fifth case of community foundations in Chengdu, China has effectively explored ways to build a public welfare platform for a sustainable community in urban renewal and governance. With an innovative fund operation model, these community foundations have: revitalized the idle space in the community with the most practical transformations starting from small activity spaces; leveraged large-scale governance with micro-funds; and maximized the utilization efficiency of community public service resources.

Overall, these cases present practical ways to build an urban governance system for the complementary and organic integration of resources across different spatial scales and governance dimensions. In practice, local governments are challenged by changes in social security, urban planning, public transportation, community services and other public administration functions, and sum up their own experience. We further call for the improvement and innovation of cross-domain cooperation mechanisms, encourage multiple subjects to participate in the governance of shared cities to benefit all citizens equally and usher in more inclusive, green and efficient sustainable development.

Case studies

Belgium, Germany and the Kingdom of the Netherlands Top Technology Region – Eindhoven-Leuven-Aachen triangle

Case background

TTR-ELAt is a transnational and transregional science and technology cooperation initiative involving four science and technology policy systems, and six sub-

regions in Belgium, Germany and the Kingdom of the Netherlands. In terms of scientific and technological cooperation, it mainly focuses on lean chemicals, advanced materials, high-end manufacturing and health sciences². With almost 20 years of experience in cooperation and development, TTR-ELAt is committed to keeping its multi-subject, multi-level and multi-dimensional governance model up to date. Through the exchange and integration of complementary professional knowledge, it serves as an external catalyst for regional agglomeration, actively promoting the attraction of high-end talent, cooperation cohesion and technological innovation competitiveness¹.

1 C. Nauwelaers, K. Maguire and G. Ajmone Marsan, (2013). The Case of the Top Technology Region/Eindhoven-Leuven-Aachen Triangle (TTR-ELAt) – Regions and Innovation: Collaborating Across Borders. OECD Regional Development Working Papers, 2013/22, OECD Publishing. URL: <http://dx.doi.org/10.1787/5k3xv0lg3hf5-en>.

2 Alda Avdic Alagic, Luuk Boelens & Marc Glaudemans, (2017). Emergence of a region. Exploring the role of spatial planning in the emergence of high-tech region ELAt using assemblage and actor-network theory. European Planning Studies, DOI: 10.1080/09654313.2017.1317720.

TTR-ELAt encompasses several small- and medium-sized cities with Aachen in Germany, Eindhoven in the Kingdom of the Netherlands and Leuven in Belgium as the fulcrums, see Figure 6.1. A significant portion of its member regions have successfully transitioned from traditional resource-based industries to knowledge-based economy sectors, with some even achieving the status of European "innovation leaders". Home to a large number of universities, scientific research institutions and innovative companies, the TTR-ELAt region has attracted and retained a substantial pool of high-tech talents. Prominent participants and contributors to high-tech oriented and open innovation practices in the TTR-ELAt region include the life

science laboratory in Aachen, Philips in Eindhoven and the Interuniversity Microelectronics Centre in Leuven. These dense technology and industrial parks facilitate the interaction of production, education and research among enterprises, research centres, universities and the public sector, injecting strong momentum into innovation-driven regional growth. Despite the relatively limited city size within the TTR-ELAt region, the scale effect of emerging high-tech industries characterized by relevant diversification and professional complementarity, has demonstrated that synergy leads to an outcome greater than the sum of its parts.



Source: Alda Avdic Alagic, Luuk Boelens & Marc Glaudemans, (2017). Emergence of a region. Exploring the role of spatial planning in the emergence of high-tech region ELAt using assemblage and actor-network theory. *European Planning Studies*, DOI: 10.1080/09654313.2017.1317720

Figure 6.1 Spatial extent of the Eindhoven-Leuven-Aachen triangle

The TTR-ELAt region has a long history of cross-border cooperation policies with its roots tracing back to the 1970s when the Euregio Meuse-Rhine and the Euregio Rhine-Meuse-North embarked on project-based cross-regional and cross-border innovative cooperation. Looking back, these early activities can

be seen as a testing ground for wider and more multi-dimensional cross-border collaboration. In 2004, the Top Technology Region (TTR) initiative was launched to strengthen the role of the south-east of the Kingdom of the Netherlands in building the Dutch innovation system, and its scale was later expanded through

collaboration with neighbouring regions. In the same year, the mayors of Aachen, Eindhoven and Leuven launched a scientific and technological cooperation initiative called ELAt (Eindhoven-Leuven-Aachen triangle) which quickly garnered the involvement of innovative entities in various surrounding towns and regions, particularly the universities within the “triangle” area. In 2009, TTR-ELAt emerged as a consolidation of the TTR and ELAt initiatives. The establishment, evolution and success of TTR-ELAt are inseparable from the solid foundation laid by a large number of cross-border cooperation projects.

It has not always been a smooth journey for the TTR-ELAt region to realize its full innovation potential. Limited investment in brand management has hindered the recognition and reputation of this hub of cross-border cooperation and innovation, necessitating further efforts to enhance its brand impact and appeal to high-level talents. Language and cultural barriers still impede the seamless cross-border flow of various innovation elements, while the lack of a stronger sense of identity and value recognition for innovative subjects with geographical differences limits the interaction and integration of diverse local capital. Innovation subjects of various scales and dimensions covered by TTR-ELAt are also challenging the governance logic and restricting the potential of cross-border element flow.

Implementation process

1. Cross-border cooperation involving multiple innovation entities

The first key driver behind the formation, development and expansion of the TTR-ELAt region is the economies of scale. Despite mostly comprising smaller cities and towns without the advantages of large metropolises, the region benefits from a well-connected and accessible transportation system, creating a networked polycentric spatial-functional organization model. By leveraging mutual scale advantages, these close-knit cities and towns achieve economies of scale, providing the economic foundation to attract high-tech personnel and enterprises. The second key driver is the complementarity of differences in innovation resources and industrial technology which sustain the high vitality and competitiveness of the TTR-

ELAt region in cross-border cooperation. The cities and towns in the region have highly correlated yet significantly different specialized knowledge and technologies, research infrastructure, and research and development (R&D) funding. All these diverse resources are combined or restructured in different ways accelerating the formation of new technologies, products and services. The third key driver aims to transcend the disadvantages of the region's marginal location and establish a national political identity ensuring the sustainable development of the TTR-ELAt region. The cities and towns in this region are located on the fringes of their respective countries so, to a certain extent, the call for scientific and technological innovation and cross-border cooperation has gained the attention and recognition of central government in the form of regional policies.

Both public and private sector innovators in the TTR-ELAt region have been proactive in fostering cross-border innovation cooperation in their respective fields. Specific examples are universities and public research centres in the public sector, and multinational corporations in the private sector such as DSM, Philips and the Saudi Basic Industry Corporation. These multinational companies, as pioneers of open innovation, have established research institutes in nearly all towns within the region, strategically harnessing the wealth of high-tech talent from different countries.

There are still some obstacles to cross-border cooperation in the TTR-ELAt region, however. The first challenge comes from the cross-border flow of information. Many small- and medium-sized enterprises have great difficulty in accessing relevant market information, technological trends and cooperation opportunities in other countries. Larger multinational companies with substantial resources find it easier to establish branches in different countries thus reducing information barriers. The second challenge revolves around insufficient public funding support for cross-border technical cooperation and R&D. Dedicated public financing or funds allocated to cross-border initiatives remain relatively limited compared to domestic funding. While the TTC/GCS fund of the Interreg project may be relatively mature, successful transnational technical

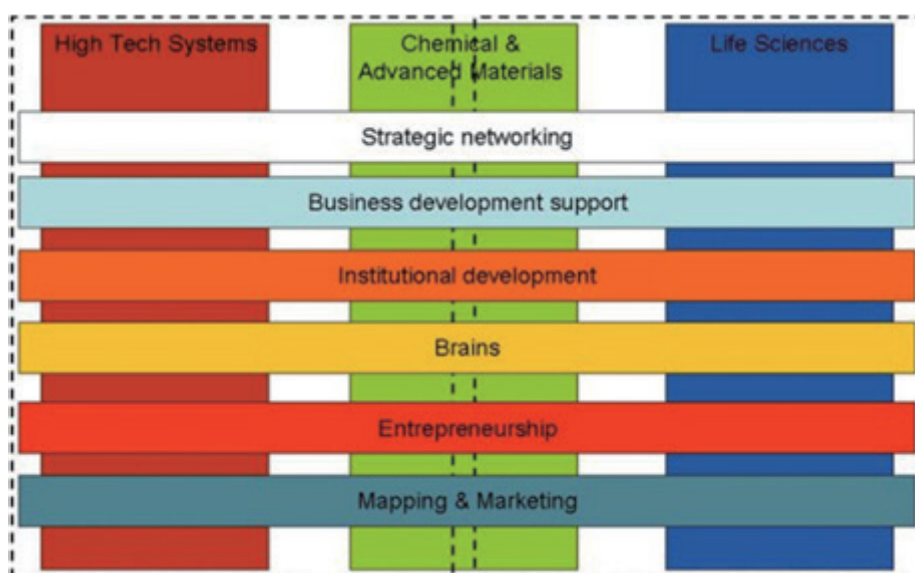
cooperation still relies on substantial public financial support necessitating consensus and joint efforts from governments in the region. The third challenge to cross-border cooperation is long-standing differences in culture and behavioural norms.

2. Bottom-up practice and governance model

Since its establishment, the TTR-ELAt area has never adopted a top-down, official development plan. Instead, it has embraced a collective action approach based on bottom-up principles, striving to maximize the common interests of multiple stakeholders and continuously seeking consensus through practical exploration. Naturally, establishing a technological hotspot with global influence in a functional area rich in innovation resources through bottom-up collective action has become a shared vision for the future development of this area. It was incorporated into the 2008 Liège Convention and refined into three specific development goals: (1) the primary development goal of TTR-ELAt is to build a high-tech region with international competitiveness; (2) particular attention should be paid to specific areas with great potential for technological innovation and commercial value namely chemicals and advanced materials, advanced manufacturing and health sciences; and (3) businesses and public research institutions should play a key role in jointly developing and implementing the TTR-ELAt action plan. This

shared vision includes a multi-dimensional action plan based on three priority science and technology areas encompassing strategic alignment, business development and support, institutional development, talent, entrepreneurship and strategic marketing, as shown in Figure 6.2. Remarkably, some areas of this plan have already been fully realized. Locally, Aachen, Flanders, Wallonia and the south-eastern area of the Kingdom of the Netherlands all have innovation strategies in place, or at least regional development policies that take cross-border innovation cooperation into account. For instance, the Euregio Meuse-Rhine 2020 in Germany stipulates specific targets for innovative cross-border regions, while the Brainport 2020 Strategy in the Kingdom of the Netherlands emphasizes the necessity of active communication with research institutions in the TTR-ELAt region to foster a cross-border scientific and technological community with close cooperation.

The combination of six partner regions across three countries has inherently increased the complexity of TTR-ELAt regional governance from the very beginning. The differences in systems, cultures and practices poses challenges in fully coordinating the interests and demands of the various participating organizations. For example, major players on the Belgian side, such as Leuven, possess a high level of autonomy



Source: Alda Avdic Alagic, Luuk Boelens & Marc Glaudemans, (2017). Emergence of a region. Exploring the role of spatial planning in the emergence of high-tech region ELAt using assemblage and actor-network theory. *European Planning Studies*, DOI: 10.1080/09654313.2017.1317720

Figure 6.2 Structure of regional research institutions

and a strong capacity to formulate and implement innovation policies. However, its higher-level provincial government, Flanders, wields less influence in deploying innovation funds and implementing policies. In contrast, both the provincial government and city government of the Kingdom of the Netherlands have equally high participation in the governance of cross-border scientific and technological cooperation, with a regional development committee composed of the government, universities and enterprises responsible for coordinating with various stakeholders in the region. The regional development committee also holds relatively high political discourse power and enjoys considerable advantages in seeking financial and policy support from the central government. Conversely, Aachen in Germany lacks a strong political voice in the regional and national systems, limiting its capacity to mobilize resources for cross-border activities. Overall, an evident imbalance exists in the political commitments of the three parties involved in cross-border cooperation. In many ways, the Kingdom of the Netherlands has participated as a qualified leader in the TTR-ELAt region, particularly concerning public funding and innovation policy formulation, whereas Belgium and Germany are comparatively more passive at the government level. Currently, the TTR-ELAt region lacks an active and long-term public coordinating institution and matching resources, which is another key factor hindering deeper and broader cross-border cooperation.

In terms of financing, dedicated sources of public funding for cross-border innovation are currently lacking. The primary support comes from Interreg, the regional cooperation fund of the Euregio Meuse-Rhine project. However, this fund predominantly targets German innovators, leaving those in Belgium and the Kingdom of the Netherlands with only indirect support as partners. The Interreg fund is indeed key to cross-border innovation cooperation in the region, but it also faces major challenges including: (1) sustainability of funds after funding ends; (2) an excessively lengthy selection process for funding projects driven more by local interests rather than project quality and its potential impact on the region; and (3) a lack of strategic approach in the fund's coverage area to ensure coherence with other regional, national or European Union policies.

Additionally, the region faces challenges in terms of branding and recognition. TTR-ELAt remains largely unnoticed by many innovators and its governance mechanisms are not conducive to branding either internally or externally. This issue goes beyond mere marketing for political interests. Instead, it represents an integral aspect of strategic policy that requires broad support from various stakeholders. Branding and marketing are essential to stimulate and harness the potential of cross-border innovation especially for small and medium enterprises to attract and retain local talents and businesses. Governments at all levels in a region will consider supporting TTR-ELAt only after the majority of voters in a region fully agree with cross-border scientific and technological cooperation.

Reference experiences

1. Maintain a flexible and variable structure for regional planning and governance policies

Difficulties in unified governance require a flexible and variable governance structure. However, the unique combination of three countries, four science and technology policy systems, six partner regions and multiple cities within the TTR-ELAt region results in a complex governance system. A flexible governance approach should prioritize avoiding conflicts between partners and ensuring that relevant government departments maintain a cohesive approach. Nevertheless, achieving consensus on actions among all partners in the TTR-ELAt region is clearly a difficult task.

2. Keep updating data on cross-border cooperation activities

Ongoing data collection and updates on the status and trends of cross-border cooperation will help participating regions demonstrate the importance of joint action and assess the effectiveness of relevant policies. The uninterrupted research and data tracking of TTR-ELAt by BAK Basel Economics fully reveals the advantages of cross-border cooperation on science and technology, laying a good foundation for its future improvement. However, the research mainly focuses on the total output of economy, and science and technology namely market value of listed companies and total number of patents and scientific papers, etc.,

and is lacking in the study of the interaction between nations in cross-border cooperation and its impact, which requires in-depth research and tracking in the future.

3. Strengthen the brand of the region in cross-border scientific and technological cooperation

The ambiguous brand image and limited recognizability of the TTR-ELAt region, along with its relatively unrecognized brand identity, reflect governance

challenges. It is suggested that various methods should be used in different fields to fully enhance the brand value and identity recognition of the region. Pilot projects and extensive public participation play an important role in deepening the existing and prospective participants' understanding of the cooperation plan. For instance, design competitions on regional brand names and trademarks, or cross-regional job fairs held in the name of regional cooperative brands are recommended.

China Yangtze River Delta G60 science and technology innovation corridor: exploring new paths for the high-quality development of regional integration¹

With the advancement of a new round of technological revolution and industrial transformation, interdisciplinary innovation, full-chain transformation and large-span collaboration have become prominent features of regional development. A science and technology innovation corridor connecting multiple hub cities through major transportation channels has become a key spatial organization form which is leading regional innovation, promoting coordinated development, gathering science and technology innovation resources, accelerating intra-regional links and improving the governance logic of regional innovation and development. In the United States of America, Highway 101 innovation corridor in California and Route 128 in Boston, and the M4 corridor in the United Kingdom of Great Britain and Northern Ireland are all world-renowned science and technology innovation corridors².

On 24 May 2016, the construction of the G60 Science and Technology Innovation Corridor was launched in the core area of the Yangtze River Delta along the south-east coast of China. Based on the major transportation channels composed of the G60

Expressway, Shanghai-Suzhou-Huzhou High-speed Railway and Shangqiu-Hefei-Hangzhou High-speed Railway, as well as innovative resources such as manufacturing bases and university towns, it has gone through several iterations: version 1.0—the G60 Shanghai Songjiang Science and Technology Innovation Corridor; version 2.0—the Shanghai-Jiaxing-Hangzhou G60 Science and Technology Innovation Corridor; and currently version 3.0. The Yangtze River Delta G60 Science and Technology Innovation Corridor, which runs through Anhui, Jiangsu, Shanghai and Zhejiang, covers the nine cities of Hangzhou, Hefei, Huzhou, Jiaying, Jinhua, Songjiang, Suzhou, Wuhu and Xuancheng and has been upgraded from a local development plan to a national strategy³.

The nine cities have jointly established and consolidated a mechanism for cross-regional coordination and continuously deepen the mechanism of “central-local linkage and regional coordination”. At the level of central-local linkage, the Ministry of Science and Technology took the lead in building the Task Force for Promoting the Construction of the G60 Science

1 This case study was written by Professor Zhong Xiaohua from Tongji University with data support from the Science and Technology Innovation Development Office of Songjiang District, Shanghai.

2 Lawrence, S., Hogan, M. Q., VanLear, S., and Rieth, K. T. (2020). A blueprint for building an innovation corridor. RTI International.

3 The Communist Party of China Central Committee and the State Council, (2019). Outline of integrated development of Yangtze River Delta. URL: http://english.scio.gov.cn/chinavoices/2019-12/02/content_75467914.htm.

and Technology Innovation Corridor. The Regional Cooperation Office of the Yangtze River Delta is guiding the operation of the Joint Conference Office of the Yangtze River Delta G60 Science and Technology Innovation Corridor composed of personnel appointed by the cities. Joint conferences, special conferences and other methods are promoted to deal with key and difficult issues of cross-regional and cross-departmental collaborative governance. At the level of regional coordination, member cities have set up special leading groups and project promotion offices while Songjiang, the source of the initiative, has successively established the District Science and Technology Innovation Development Office and District G60 Innovation Research Centre to link the nine cities and carry out special activities such as work exchange, element connection, achievement release and cadre exchange.

A number of cross-regional cooperation carriers such as the “alliance + base + park + fund + platform” cross-regional cooperation system, “1+7+N” industry alliance system, cross-regional industrial collaborative innovation centre, “G60 Science and Technology Cloud” element connection platform, scientific and technological achievements transformation fund, demonstration base for the transformation of scientific and technological achievements, science and technology roadshow centre consortium, high-quality development demonstration park for the integration of industry and finance, collaborative innovation alliance of universities and an expert advisory committee have been built under the leadership of key enterprises, deeply integrating innovation, industry, capital and talent chains¹.

Institutional innovation has effectively removed the systematic and institutional obstacles to the free

flow of innovation elements such as technology, achievements, talent and funds. Specific measures and achievements include establishing the “All-in-one network” for 178 issues in the nine cities along the G60 Science and Technology Innovation Corridor; setting up China's first cross-regional intellectual property administrative protection cooperation centre; uniting with the financial supervision departments of the three provinces and one city in the Yangtze River Delta to issue 28 financial support policies successively, and establishing and improving the matrix of financial products such as G60 science and technology innovation, park, quality, standard and talent loans; establishing the G60 national immigration policy practice base and implementing administrative measures for the permanent residency recommendation and recognition of G60 high-level foreign talent to pilot talent introduction policies and facilitation measures; and formulating a three-year action plan for implementing collaborative innovation, continuously optimizing the business environment and building a high-level talent highland².

Over the past seven years, by means of cross-regional planning, platform construction, institutional innovation and policy supply, the G60 Science and Technology Innovation Corridor has broken administrative barriers within the region, promoted the effective gathering and flow of innovative elements such as projects, technologies, funds and talent, and focused on promoting the connection of production, education and research, industry and finance, and urban agglomeration. With the gradual formation of an open, shared, co-constructed and symbiotic scientific and technological innovation ecosystem, it has become a regional innovation cluster with international influence.

1 Ministry of Science and Technology of the People's Republic of China, et al., (2020). Plan for the Construction of the G60 Science and Technology Innovation Corridor.

2 People's Bank of China, et al., (2022). Comprehensive Service Plan for Financially Supporting the High-quality Development of the Advanced Manufacturing Industry in the Yangtze River Delta G60 Science and Technology Innovation Valley.

Seoul, Republic of Korea

Smart Seoul: modernizing city governance

Case background

Seoul has long been recognized as a pioneer in innovative city management and smart city development. Where a lack of data integration and institutional coordination has created significant administrative inefficiencies in the city, it has hampered the planning and delivery of public services. Information often fails to reach leadership and city-government decision makers at sufficient pace, leading to missed opportunities in the analysis and use of data which could help prevent urban issues. With a growing digital divide, access to technology has also decreased for certain groups in the city, increasing socioeconomic inequalities.

Initiated in 2015 via government research and development, and local government distribution the Seoul Metropolitan Government (SMG) developed a smart city platform that integrates various urban datasets and services to improve the lives of the city's citizens and visitors. The platform operates as a core smart-city based infrastructural component that manages a multitude of urban conditions and promotes people-centred inclusion, contributing to a more intelligent city. Leveraging the platform's ease of access, Seoul is actively promoting digital inclusion policies guaranteeing the five basic digital rights: communication; mobility; education; safety; and use of technology, and is providing digital services tailored towards the socially vulnerable.

By establishing a clear institutional arrangement among city government departments and promoting a unified data approach to smart governance, the Smart Seoul Platform has demonstrated a novel and innovative approach to local governance. The initiative has laid the foundation to align and reconcile the city's data operations into a unified strategic direction, paving the way for more standardized development in future information and data initiatives, and a more robust evidence-based approach in urban policymaking. As a state-of-the-art system for mayoral use, it is also working to promote greater transparency and efficiency in the city administration.

Implementation process

SMG established the Smart City and Digitalization Masterplan (2021–2025) to pre-emptively respond to the accelerating digital transformation and forthcoming changes to urban life to enhance quality of life for citizens and drive global city competitiveness. The masterplan foresees Seoul as a leader in the future of digital transformation as a global smart city and aims to create new innovative smart city infrastructure, positioning Seoul as a pioneer in the transition, and providing urban services for public benefit.

1. Development of the Smart Seoul Platform

As the core infrastructure of future Smart Seoul, the Smart Seoul Platform (S-Platform) was first developed in 2017 to improve on-site disaster coordination and mobility, and enable rapid access to administrative information. In 2019, the platform strengthened its existing functions and integrated new additions, widening the scope of functionality to address a variety of urban challenges, and better connect people and the city based on highly advanced ICT infrastructure and technology. Hosting a number of smart infrastructure components, the platform acts as a digital suite for users to access services and address urban challenges.

As a smart city telecommunications infrastructure, the Smart Seoul Network (S.Net) provides several smart city services including the provision of municipal broadband networks (LAN+wireless). Constituting the basis of Seoul as a future smart city, it is ensuring broadband is accessible for all. With the growth in the use of mediated technology amid the COVID-19 pandemic, communication became an essential public resource as the government was legally obliged to address the digital divide as the right to broadband is part of a citizen's right to information. There was a surge in demand for new ICT technologies across administrative sectors such as transportation, environment, safety and welfare. The network is enhancing administrative efficiency via the integrated connection and operation of a separate broadband network for individual institutions and is reducing communication costs from rental networks by actively utilizing broadband networks. It is also reducing the data gap and digital divide, enhancing Seoul's global city competitiveness and brand recognition.

Precise data collection and systematic analysis has become of high importance to assess newly occurring urban phenomenon as cities grow in complexity and diversity. The Smart Seoul Data of Things (S.Dot) operates to convert urban phenomena and civic behaviour into data and deliver insights to citizens. Internet of Things (IoT) sensors and smart CCTVs are installed across the city to analyse data sets from 17 different urban phenomena. This sensor data can be used to inform urban policies, increase urban safety and generate more citizen-oriented services with public-private cooperation. As of May 2022, sensors were installed across 1,100 locations monitoring population, particulate matter, UV rays, wind speed and direction, weather, humidity, light, noise, vibration, ozone, odour, air pollution and black bulb (the city radiant heat measurement).

Smart Seoul Data (S.Data), a big data service platform, is a project for boosting data-driven economy via supporting multilateral trade and the active use of urban big data of several agencies, and providing big data analytical capabilities. As an integrated service platform it enables analysis, combining and trading of data whereby unified management capabilities help with the collection, storage and use of internal and external data. As an integrated big data storage facility, it contains physical space to store vast quantities of raw big data, notably, a batch collection interface which functions to systematically secure administrative system data and city data with minimal human intervention. Big data storage was built with a particular focus on security where sensitive data is stored in a safe zone, non-private data is stored in the source data storage and data processed to meet the service needs to develop different services is kept in the service dataset storage. Built as a user-friendly and intuitive platform, it offers differentiated experiences via the metaverse that can be easily interpreted and utilized by building services step by step with a long-term goal. Built in three steps (the AI analysis platform, the metaverse platform and integrated big data storage), the first and second are designed for public officials whilst the latter caters for civil service. Where the artificial intelligence (AI) platform can formulate desired analytical results in natural language and voice, Seoul aims to support the visualization of data-based administration and cultivate an ecosystem for

integrating AI based on big data by supporting the use of the AI analysis platform among public officials and for public access. A data analysis management system will be secured by unifying the collection and storage of administrative data, and strengthening the detection and de-identification of personalized data, data localization and standardization, data and metadata management via data governance management policies. A public data collection and integrated management system will integrate scattered data collection paths into a connected storage space.

Designed to provide customized services through the implementation of AI-based intelligent governance, Smart Seoul Brain (S.Brain) supports AI led decision making that develops new services by organically analysing data via "Seoul Talk", an AI representative which responds to questions related to city administration and receives on-site complaints regarding any issues in the city. The public service hotline covers a range of service areas including transportation, administration, welfare, environment, culture, economy, safety and housing whilst public service registration, library guidance and online learning are also accounted for. As a digital twin of the city, Smart Seoul Map (S.Map) serves as a state-of-the-art system that implements Seoul in the same 3D virtual cyberspace and promotes scientific policy formulation by predicting transitions in urban planning, safety and the environment ahead of time, see Figure 6.3. The ability to perform 3D analysis is highly impactful for local policy development, enabling the convergence and integration of administrative information and urban sensing information. Analysis relating to each used model and diagnosis is made possible, whereby simulations can also be used to support decision-making. The map also enables the visualisation of 3D spatial information, creating a foundation for integration with various administrative services and can be used as a channel for citizen communication via citizen participation policies, online opinion submissions and information sharing.

Smart Seoul Security (S.Security) contributes to the safety of public administration services, incorporating solutions to prevent intelligent cyber-intrusion accidents and safely secure personal information. With a pilot project executed in 2021, the system



Source: <https://english.seoul.go.kr/digital-twin-lab-to-explore-innovative-industrial-models-with-high-precision-spatial-data/>

Figure 6.3 An augmented reality service model of Gwanghwamun Square. The Seoul Smart City Centre Digital Twin Lab enables the exploration of innovative industrial models using high-precision urban spatial data

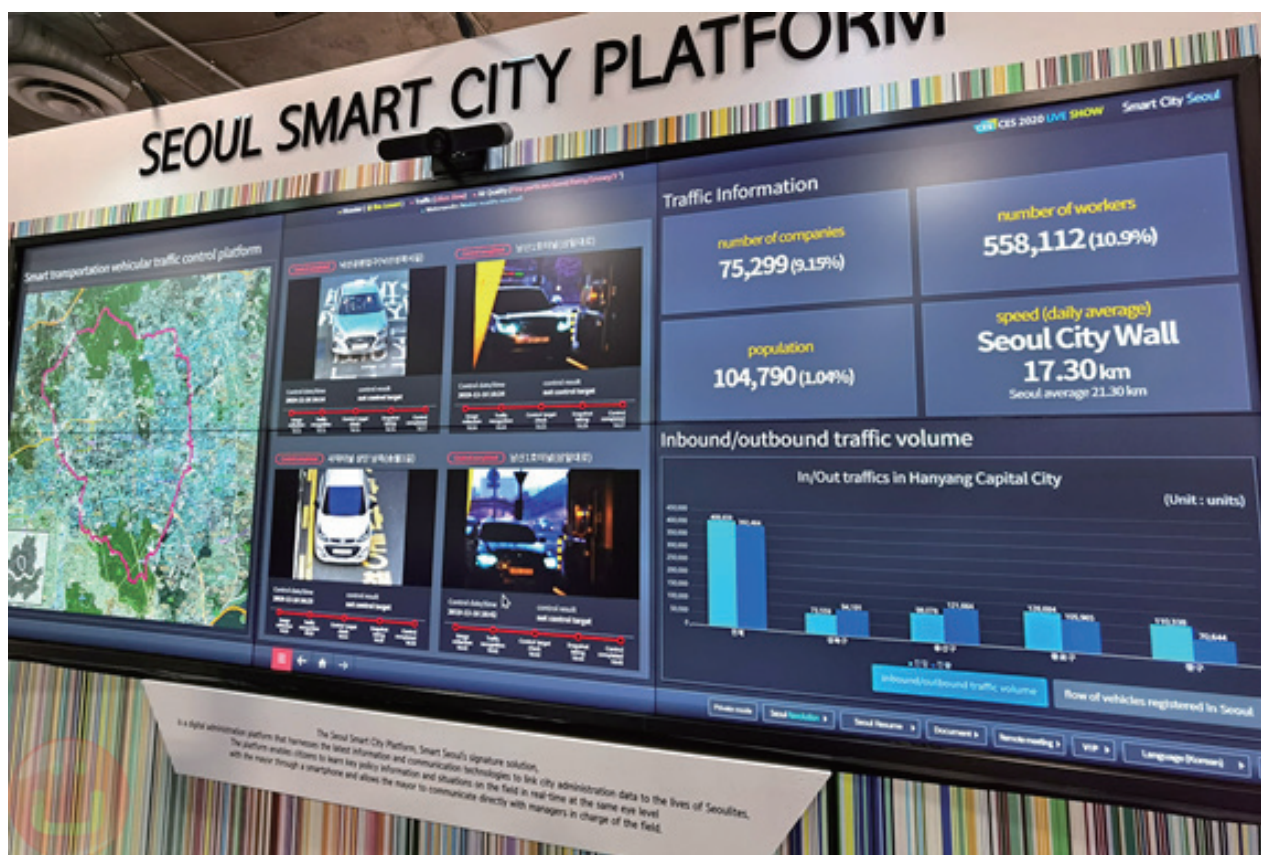
contains four sub-systems including those for risk collection and analysis; violation accident prediction machine learning; violation accident response and risk intelligence. Tackling a growing, large-scale threat, it acts as a continuous response system for security risks by strengthening control tower functions and privacy protection activities, placing Seoul as a world leading city in cyber safety. With a growing global demand to transition poles into smart poles, the Smart Seoul Pole (S.Pole) facility functions as a core smart city infrastructure improving to enhance global city competitiveness and enhance citizen convenience. As a citizen-friendly facility it combines poles installed across the city such as traffic lights poles, streetlight poles, CCTV poles and security light poles, with various smart city ICT including futuristic street lighting, smart integrated CCTV surveillance, connection with the next-generation intelligent transportation system, electric charging infrastructure, public Wi-Fi, S.Dot IoT sensors,

S.Net and smart crosswalks, see Figure 6.4. Using a practical standard model which can upgrade into core smart city infrastructure, a total of 300 smart poles have been established in strategic locations across the city¹.

The Metaverse Seoul Masterplan (2022–2026) was established by SMG as the government's first comprehensive plan to initiative a new technology-based administration platform "Metaverse Seoul", a virtual municipal world creating a hyper-realistic community space of creativity and communication in which all users can access augmented experiences. As a high-performance platform, it responds to the changing administrative environment in the city and delivers new public services across multiple sectors (see table 6.1). SMG officially rolled out the first service phase of the platform in January 2023 following successful beta tests carried out by 3,000 residents². Phase one of the project runs from 2022–

1 Smart Seoul. S-Pole (Smart Seoul Pole). URL: <https://digital.seoul.go.kr/eng2025/smart-seoul/s-platform?article=4920>.

2 Tomorrow City, (2023). Seoul is the first city to join the metaverse (and this is what can already be done). URL: <https://tomorrow.city/a/seoul-metaverse>.



Source: Rob Pegoraro, (2020). A Look At Korea’s Smart-City Ambitions at CES. URL: <https://www.ubergizmo.com/2020/01/koreas-smart-city-ambitions-ces/>
Figure 6.4 Traffic information displayed through the Seoul Smart City Platform dashboard

Table 6.1. Metaverse Seoul public services vision

Economy	Education	Culture Tourism	Communication	City	Administration
Invest Seoul	Seoul learn metaclass	Metaverse Seoul tour	Metaverse 120 call centre	XR City	Conference service
Fintech Lab	Seoul learn dreamcentre	Participatory festival platform	Seoul citizen platform	Intelligent city management	Smart work
Digital content playground	Metaverse campus of Seoul citizen colleague	Exhibition service	Virtual mayor's office		Big data service
Metaverse campus town					

Source: Developed by the authors

2026, allowing users to explore the city via avatars using public services, asking questions on issues and receiving advice. The platform is based on the three key values of freedom, inclusion and connection. The value

of freedom focuses on creating a community space in which users can express themselves creatively and communicate freely with one another, taking advantage of public services 24 hours a day all year round. The

second value of inclusion then focuses on accessibility where users can interact as avatars without any barrier or discrimination with access to locations such as the Seoul Fintech Lab and Seoul Business Support Centre, and top tourist attractions in a hyper-realistic space. Lastly, the value of connection aims to build

a virtual world that offers immersive experiences of reality for users to enjoy public services. As the first of its kind globally, Metaverse Seoul is a first mover to build the platform as a prototype and to promote it as an archetype for virtual municipal administration, as shown in Figure 6.5.



Source: The Washington Post, (2021). URL: https://www.washingtonpost.com/world/asia_pacific/metaverse-seoul-virtual/2021/11/27/03928120-4248-11ec-9404-50a28a88b9cd_story.html

Figure 6.5 Mayor Oh Se-hoon attends an event as an avatar, demonstrating the aim to launch city government services on the metaverse

2. Promoting an inclusive digital governance model

In response to the widening digital divide that has resulted from the rapidly accelerating digital transition, SMG developed the 2022 Digital Competence Strengthening Plan to promote digital inclusion by operating customized digital education and creating ecosystems that bridge education and employment. Adopting the values of accessibility, inclusion and independence, it has harnessed four strategies termed “right beside”, “just right (for me)”, “neighbourhood-wide” and “continuously together”. With each contributing to a larger-scale approach “right beside” aims to enhance the effectiveness of education through demand-based in-person education services including personal tutoring for seniors by instructors who possess digital qualifications. In this sense, students are provided with the support and education they need to enhance

their knowledge on digital tools. Secondly, the “just right (for me)” strategy supports customized learning for every proficiency level via detailed programmes. Here, independent repeat learning is also being made available for seniors that can be used online and offline. Thirdly, “neighbourhood-wide” refers to the permanent operation of public digital education facilities that are easily accessible from home as well as the creation of a senior digital centre open to visits, experiences and education at any time. And “continuously together” promotes the development of a cyclic ecosystem connecting education to employment in which education participants are employed as instructors. In addition, it promotes social-contribution type jobs for seniors, nurturing them as digital care experts.

Reference experiences

1. Recognize the value of interconnected digital infrastructure in driving efficiency in urban governance

Seoul's use of smart technology highlights the key benefits of developing integrated and connected smart city infrastructure in a rapidly evolving urban landscape. As cities continue to grow in size and complexity, managing various aspects of urban life becomes increasingly challenging. The Smart Seoul platform serves as a powerful tool to harness data, technology and innovation increasing efficiency and sustainability in city governance. By seamlessly connecting essential systems such as transportation, demographics and public safety, among others, urban actors gain real-time insights, enabling them to make data-informed decisions in response to live events. More informed decision-making can, in turn, better optimize resource allocation and improve urban quality of life and citizen well-being. The Smart Seoul platform fosters inter-departmental collaboration within local government as well as private sectors and citizens, fostering a more participatory and responsive urban governance model. Ultimately, investing in an integrated smart city platform empowers cities to tackle pressing urban challenges with greater efficiency, enhance service delivery, and cultivate a resilient and future-ready urban landscape.

2. Cities can harness the potential of smart e-governance mechanisms to address the digital divide

Via Smart Seoul, the city is pioneering strategies to increase citizen access and understanding of digital technologies, contributing to more equitable, inclusive and prosperous urban development. Bridging the digital divide in cities is a matter of utmost significance as technology increasingly becomes the backbone of modern society. Failing to address this divide can exacerbate existing socioeconomic inequalities, leaving marginalized communities further behind. By bridging the digital divide, cities can unlock immense potential for their residents. Access to the internet and digital tools enables individuals to access information, education and job opportunities. It empowers them to participate in the digital economy, making them more economically and socially integrated. A digitally connected population fosters innovation and creativity contributing to a thriving, inclusive urban

environment. By prioritizing efforts to ensure equitable access to digital infrastructure, cities can move closer to achieving inclusivity, economic prosperity and sustainable growth for all citizens.

3. Digital access to public services can help to promote inclusive governance

Digitally accessible public services offers a multitude of benefits that help to streamline administrative processes, enhance citizen engagement and foster greater efficiency in city operations. Whilst recognizing hurdles must be overcome to increase access to digital technology, by leveraging technology to make services accessible online for all, cities can significantly reduce bureaucratic barriers and save time for both citizens and government officials. Digital platforms enable citizens to access essential services remotely; a more convenient and inclusive mechanism. Digital interactions also provide valuable data insights enabling policymakers to produce higher-quality service delivery. Through online platforms and applications, SMG is actively boosting engagement with citizens, seeking feedback and involving them in decision-making processes. Embracing digitally accessible public services transforms city governance into a more transparent, accountable and responsive system, engaging citizens more closely in governance processes and thus fostering higher levels of citizen satisfaction and more prosperous urban communities.

Mexico City, Mexico Tianguis Digital: driving transparent and efficient public procurement

Case background

In Mexico City, highly bureaucratic approaches to public procurement and contracting have dominated city government processes. Exacerbating inefficiencies, many stakeholders within the government continue to work under prevailing traditional logics and do not wish to share information or control over procurement processes due to individual responsibilities, internal power logics and administrative inflexibility. Where the city government and mayor's offices have largely operated in silos, a lack of communication and cooperation has reduced transparency and encouraged

corruption. This has, in turn, resulted in a general lack of faith in the government among society and an unwillingness for people to participate in public governance. Ongoing citizen demand for improved public procurement has led to growing emphasis on this matter in electoral campaigns during which large contracts came under scrutiny.

Via the Digital Agency for Public Innovation (ADIP), the government and municipalities of Mexico City set out to transform public procurement processes by enhancing the quality of information management, increasing transparency and expediting or eliminating inefficient internal procedures that have served to slow down processes. As a strategy and digital tool, ADIP launched Tianguis Digital (TD) to help improve public purchasing processes. Serving as a new digital innovation, the platform has sought to reach all municipal governments across Mexico City, increasing citizen participation and promoting regional development by publishing public procurement information via an open data and open contracting system. The platform is helping to ensure data and information associated with municipal government contracts is published progressively from the planning phase all the way through to contract execution, complying with the principle of maximum transparency as established through regulations. As a public procurement system it offers tools and modules to record, conduct and monitor public procurement processes via the principles of openness, transparency and accountability to ensure better goods and services for all.

Focusing on three core axis, TD aims to: (1) contribute to the city's public purchasing planning processes; (2) carry out accompaniments and facilitate the use of digital tools to undertake purchase processes; and (3) monitor purchase processes and optimize decision-making based on information. As a transformational strategy it contains a number of unique characteristics. TD is modular and complete, comprising of several modules that serve to provide users with a variety of tools that facilitate compliance across all phases of the public procurement cycle. In addition, it is transactional and promotes interaction and cooperation between citizens, suppliers and officials via technology, reducing costs and barriers to participation thus making it

highly accessible. It is interoperable, facilitating direct interaction between platform modules which helps to streamline processes and prevents the duplication of information and tasks within the platform. It also promotes communication with other federal systems such as the National Digital Platform or the tax and banking systems. Following the principles of openness and transparency, TD ensures access to all information and databases throughout the procurement cycle and is receptive to public participation and social control processes. By offering different channels of participation, it therefore operates as an open-door system from database consumption through to collaboration mechanisms, reducing risks of conduct contrary to the public interest. Accordingly, information in open data formats is based on international standards and the system modules are open source, ensuring that all computer components created can be obtained, modified and utilized by third parties.

Implementation process

As a new innovation, TD has provided Mexico City's public administration with a set of tools to plan, conduct and monitor public procurement procedures in an open and efficient manner, promoting the fair allocation of resources. However, where it is working to reform the city's public procurement system, facilitate institutional redesign and transform incentives, rules, weights and counterweights, it is more than just an ICT driven modular technological solution. It is offering a revolutionary way for the city to purchase goods and services, allowing more individuals and organizations to participate in the public procurement phase, facilitating multi-sectoral collaboration schemes on integrity in public procurement.

1. Development of modules and tools

TD has been developing a suite of procurement modules for suppliers, city departments and residents incrementally over several years since its establishment. Offering online methods for registration and bidding by vendors, the modules serve as tools to assist suppliers, residents and city departments to facilitate compliance with the integral principles of public procurement cycle. Digital operation ensures that every action can be tracked – expenditure and contracts arise digitally and are immediately

transferred to a public information system.

Following the formation of a new government team in 2018, TD was formally presented by the Head of Government on 11 February 2019 with the launch of two initial modules: Registry of Suppliers and Business Opportunities. The Registry of Suppliers offers a space to facilitate exchange with suppliers, inviting them to quote to strengthen market potential, whilst the Business Opportunities module enables users to consult on all current openings with unrestricted access to the bases – search engine filters allow the most suitable projects to be found. Public contract notices as well as the terms and conditions of tenders are also integrated offering the basis for minimum public information in regard to transparency under international standards.

Additional modules have been integrated for providers, including the Provider Register, enabling simple registration free of charge in the Mexico City Supplier Register (CDMX), a mandatory requirement for those wishing to participate in contracting processes. The Digital Contest module was developed to create a space for providers to enter a public tender or a restricted invitation contest via a digital modality, facilitating the contracting process for convening entities and bidders. Launched in February 2022, the Discussion of Prebases module also provides citizens, companies and organizations with the ability to participate in the co-creation and design of the most relevant contracting projects. Functioning as a space containing the city's public procurement projects under planning and which are open to public discussion, it supports the purchasing units in the elaboration and conceptualization of the technical, legal and administrative elements of a project. Accordingly, users can propose modifications or input comments to the bidding project in order to adjust them to the real standards of the market and the needs of citizens.

In addition, a number of public tools have been designed. A Contracting Viewer tool was created to provide users with access to data and visualizations that enable analysis of spending on public contracts at different phases of the public procurement procedure. Data can then be analysed within the planning, contest, awards and contract phases. In addition, the Open

Contracting Data Standard tool has allowed users to consult information on CDMX contracting procedures under the open data hiring standards, whilst the Summons Open Data tool hosts calls for public tenders and announcement of restricted invitation announcements for public purchases on the CDMX Open Data Portal. In conjunction, these components serve as integral means to facilitate transparency across the government procurement process.

Mexico City has further incorporated TD tools to improve hiring processes in line with the core principles and to help ensure that the best conditions are met in terms of price, quality, financing and opportunity. The Normativity tool enables consultation of current legal frameworks regarding local public procurement, hosting information on laws, regulation and guidelines. A module on Strategic accompaniment in public purchases also provides advice and support in the most complex contracting processes, ensuring compliance with set standards and budget transparency, as well as the best market conditions in relation to quality-price opportunities. A training module teaches users how to upload business opportunities and public discussion projects in Prebases.

2. Adopting Tianguis Digital in the contracting for the renewal and expansion of the Ecobici system

Contributing to a more sustainable city, TD has supported the implementation of several successful projects across Mexico City. Initiated in February 2010 as Latin America's largest bicycle sharing scheme, Ecobici is a pioneering system, see Figure 6.6. Following 10 years of successful operation, in 2019 the opportunity arose to review and redesign the system's contracting model where TD was adopted to facilitate the contracting procedures for renewal and expansion of the scheme. With just two companies bidding upon the scheme's launch, a decade later many more companies offered a range of solutions, technological and technical characteristics, and business models. Encouraging multi-stakeholder dialogue, the procurement approach aimed to connect a diversity of stakeholders, build trust between different actors and promote information sharing. The TD strategic contracting support area was opened for the initial planning stage where a public event was held providing interested companies the chance to

attend and propose their product. In an open survey, participants were asked a number of questions on what they offered, the durability of their product and their proposed business model. The project was then presented to the public in October 2019 by the city government and prospective vendors were encouraged to participate during a 30 day call in December 2019. To improve the transparency of this procedure, a public report of findings of the study was also prepared to ensure conditions of the competition were not violated. A total of nine companies applied with seven complete proposals containing key information regarding their sustainability in terms of service such as infrastructure and technical cycling equipment. Receiving positive public feedback and a range of involvement, the process demonstrated the value of the commitment to openness, transparency and accountability, and showcased the value of TD in stimulating greater procurement interest and competition.

After two years of planning, the Ecobici contracting procedure was successfully completed in late 2021. Using the TD Prebases module for the international public tender, this resulted in government budgetary savings of 54 percent (MXN 1.2 million) for the renewal and expansion of the system for six years¹. The use of TD also led to 26 rounds of improvement, two marker exercises and the development of a specialised micro-site to enable monitoring and follow-up on the implementation stages and the participatory process². Today, the Ecobici renewal and expansion has integrated 2,500 new bicycles into the service (making a total of 9,300), as well as 207 new cycle stations (making a total of 687) across the city that have stimulated new connections with more transport services³.

TD has also pioneered a number of other projects. It supported the development of a market survey for suppliers for the city trolleybuses aimed towards

national and international providers. In this exercise, seven questionnaires were obtained in which the Buying Unit learned the specification of the purchase through a dialogue exercise between the Buying Unit and the Market. In addition, five companies interested in the process were identified with over 20 years of combined experience in the acquisition of specialised transport units. The platform also provided strategic support in the process of the emerging public purchase of tests to detect the COVID-19 virus during the acquisition of Passenger Transport Network units in 2022. Consultation and discussion of Prebases for the acquisition of biometric registration equipment for the CDMX citizen signature function was also undertaken, through which comments were collected on the bidding bases in order to improve the public procurement process. A consultation and discussion of Prebases for procurement projects required by metrobus was also undertaken in 2022, specifically the provision of toll services, access control of the metrobus public passenger transport corridors and the hiring of the metrobus operation support system.



Source: Carey, L. Mexico City Streets. (2021). Renting a bike in Mexico City. URL: <https://mexicocitystreets.com/2021/09/16/renting-bike-mexico-city-2/>

Figure 6.6 The Ecobici scheme

¹ Mexico City Government. Tianguis Digital: Efficient and transparent public purchases. URL: <https://www.tianguisdigital.cdmx.gob.mx/noticias.php?id=tianguis-digital-compras-publicas-eficientes-y-transparentes-jgd395>.

² Mexico City Government. Improve your hiring processes. URL: <https://herramientas.tianguis.cdmx.gob.mx/>.

³ Mexico City Government. Renewal and expansion of the ECOBICI System. URL: <https://www.tianguisdigital.cdmx.gob.mx/ecobici/>.

Reference experiences

1. The integration of digital platforms offers the potential for local governments to catalyse greater transparency, accountability and efficiency within public procurement

The use of TD has transformed public procurement processes in Mexico City. Through the ability to record all transactions, bids and contract awards and make this data easily available to the public, it has allowed for the city to provide a transparent and auditable record of the entire procurement process. In turn, this has helped to reduce the potential for corruption and promote greater accountability throughout the process of acquisition of goods by private companies and public institutions. In addition, the automation of procurement processes via TD has demonstrated its ability to drive cost savings, whereby requests, evaluations and approvals can be managed more easily, reducing administrative burdens and processing times. Real-time collaboration and communication between procurement officers, suppliers and stakeholders also improves coordination, whilst the use of larger data sets leads to more efficient and informed decision-making throughout the procurement cycle. Digital procurement based on fundamental principles of openness, transparency and accountability thus present cities with unrivalled opportunities to increase the quality and efficiency of their own procurement mechanisms, promoting greater trust in government decisions within the public domain.

2. Recognize the value of Prebases in strengthening the planning of contracting procedures

By promoting modernization in procurement, TD Prebases have represented an innovative initiative, stimulating citizen participation in the planning of strategic, high-impact procurement procedures in Mexico City. Prebases have unlocked a space to present and review high-profile public procurement projects in which citizens and organizations can offer their opinion and suggest amendments to the proposed bases of public tender procedures. As well as increasing participation among citizens, civil society organizations and suppliers, Prebases have shown to also increase knowledge of the market and the supply of goods and services among public servants, strengthening technical annexes and bidding

bases, and increasing competition hence providing procurement with a better cost-benefit. As the first of its kind to foster citizen participation in Latin America, the tool has modernized the purchasing process and has highlighted its ability to increase collaboration between citizens and the city government to achieve better planned procurement. Crucially, the strategy has also helped to democratize procurement, hence promoting the transition towards open government and sustainable urban development.

3. Open-contracting strategies can foster greater competition and quality in the procurement process

By embracing open-contracting principles, TD has attracted a more extensive and diverse pool of suppliers in public procurement projects, sparking greater competition in bidding phases. It has increased competition which has also served to drive down costs and stimulate innovation in solutions, benefitting both the government and citizens. When suppliers have open access to information, they can better understand the procuring entity's requirements and needs, allowing them to tailor their bids more effectively and deliver higher-quality proposals. Open-contracting enhances accountability among suppliers where they are more likely to adhere to compete fairly, minimizing the risk of corruption and collusion. Revolutionizing procurement in Mexico City, TD highlights the importance of implementing tools that necessitate open-contracting strategies to drive inclusive and equity-based governance.

Chengdu, China Community foundations in Chengdu: construction of a public welfare platform in urban renewal and governance

Case background

China's first non-public community foundation was established in Shenzhen in 2008. In 2013, China's first public community foundation was established in Shanghai. In comparison, the community foundations in Chengdu have been established relatively late – mostly between 2018 and 2021 – but this gives them some advantages.

Currently, there are several key and common difficulties related to funding in urban community renewal and community governance in China: (1) often restricted by financial funds, the spatial renewal of the community is relatively inflexible in terms of procedures and cannot be effectively promoted in accordance with community planning¹; (2) the importance of community governance has become increasingly prominent in recent years but the resources and carriers for community self-governance are insufficient. For example, due to the lack of human resources, financial and material guarantees, professional organizations, technical services of social work professionals and foundation organizations that provide funding, it is difficult for neighbourhood committees to perform their duties as representatives of all residents; and (3) donations from the community are mainly used on inclusive charitable services for poverty alleviation. They generally have a single source and mode of operation, poor operating performance, and lack broader and innovative public welfare concepts.

With the Charity Law of the People's Republic of China coming into effect on 1 September 2016 and the Opinions of the Central Committee of the Communist Party of China and the State Council on Strengthening and Improving Urban and Rural Community Governance officially issued in June 2017, conduits such as charitable donations and community foundations are now encouraged to guide the social funds for urban and rural community governance. With the mission of cultivating community organizations and community capital, they accelerate the accumulation of public welfare assets and encourage public welfare organizations to participate in community construction. With community capital, a public welfare ecological service chain is gradually formed with community foundations managing the capital, public welfare centres managing the community assets, and associations and NGOs providing community services and the circulation of services and welfare. As a result, community foundations can function as community resource and support platforms, and become training bases and incubators for private community foundations, to a certain extent.

In 2017, Chengdu municipal government issued a series of policy documents to support the establishment of community foundations and the Urban and Rural Community Development and Governance Committee of the Chengdu Municipal Committee of the Communist Party of China, launching the reform of community governance in the area. The upsurge of community building in Chengdu has also sparked social impetus for community foundations. In 2020, the Sichuan Provincial Department of Civil Affairs lowered the initial capital threshold of community foundations, further encouraging their formation in line with the previous measures. Chengdu is striving for funds to cover urban and rural communities across the city by the end of 2024. Although the community foundations in Chengdu are relatively new, they have achieved remarkable results based on the experience and lessons learned from foundations in other cities, and are to some extent representative of the region.

Implementation process

The community foundations in Chengdu have taken on the role of supporting platforms in community governance and successfully expanded channels for fundraising. They have effectively managed community resources, cultivated community organizations, optimized community services, encouraged the participation of multiple parties and contributed to the community model of multi-subject co-construction, co-governance and sharing.

1. Joint governance model of "government-enterprise-society"

The community foundations in Chengdu were established as district-level units which enhances their ability to coordinate resources. There are currently two models of community foundation depending on the source of funding:

(1) Non-public community foundations are initially funded by private enterprises. They are often supported by real estate developers and co-founded by residents and the government. Typical examples are the Shenzhen Taoyuanju Public Welfare Development

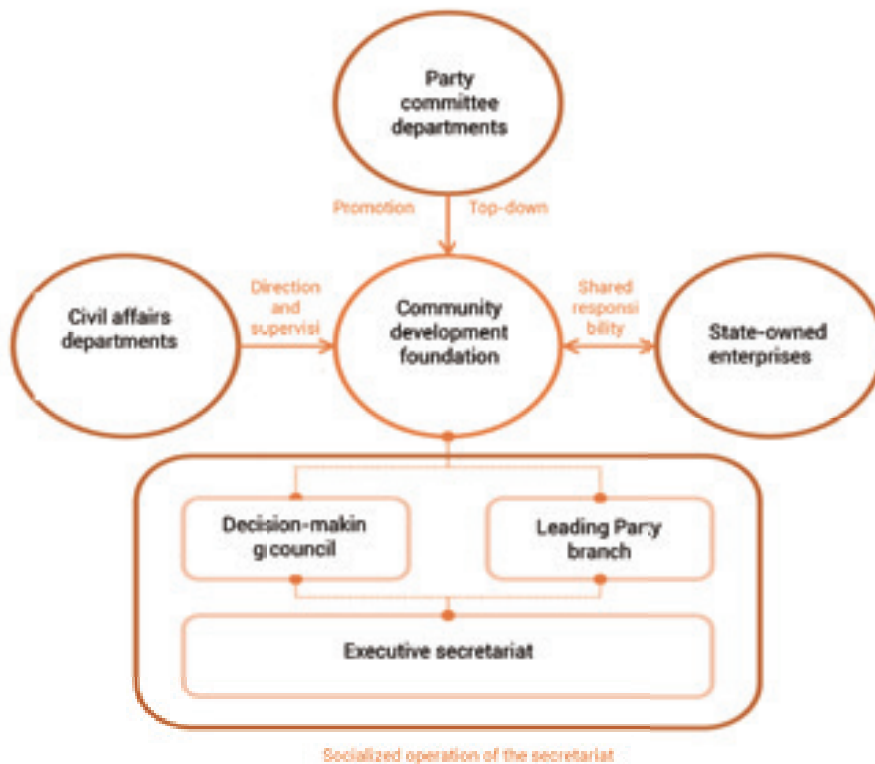
¹ Huang Yi. Community Planning [M]. China Architecture & Building Press, 2021.

Foundation and Chengdu Luxelakes Community Development Foundation.

(2) Public fundraising community foundations are funded by the government (including state-owned enterprises, streets, etc.). They are often guided by public welfare support organizations, supported by the government, include resident participation and are operated in a socialized manner. Typical examples are the Shanghai Yangjing Public Welfare Foundation and most of the foundations represented by the Chengdu Wuhou Community Development Foundation.

the same internal operating logic as shown in Figure 6.7. The foundations adopt a “government-enterprise-community” joint governance model that integrates the government, social organizations and the market. They are supervised and guided by the civil affairs department, promoted by the party committee and socialized by the secretariat. They share responsibility with state-owned enterprises. Although led, supervised and supported, community foundations can operate independently and actively, lowering the threshold for public participation in welfare charity and community governance.

Both types of community foundation have basically



Source: Developed by author

Figure 6.7 Structure and model of community development foundations in Chengdu

2. Mature operating model of “government guidance + socialized operation”

The community foundations in Chengdu, which are increasingly important in the development and governance of innovative communities, mainly undertake three functional roles: the “capital pool” of public welfare; the catalyst and supplier of community

public services; and the exchange platform of public welfare resources. The characteristic operating model of community foundations consists of three parts:

(1) Mobilizing and allocating community resources, actively expanding various charitable resources to create a donation circle and making overall

arrangements.

(2) Providing and cultivating community public services, guaranteeing community services with funds, setting up special funds, supporting social organizations, cultivating volunteer groups and encouraging community co-construction. Building a “603” community foundation forum and knowledge-based community, reaching a community consensus and cultivating professionals.

(3) Building a community media platform, linking various resources, giving full play to the advantages of integration, actively exploring the needs of the community, operating charitable resources in a market-oriented manner and promoting the sustainable development of the community.

Wuhou Community Foundation and Luxelakes Community Development Foundation cases are used for specific illustration. As the first community foundation in Sichuan Province, the Wuhou Community Foundation is a mature model of “government guidance + socialized operation”. In community co-governance and sharing, it effectively serves the construction of the community through the following three measures:

(1) Operation of public welfare projects, see Figure 6.8.

The Wuhou Community Foundation focuses on three types of public issue: ① space update. The Spring Plowing Plan project for the treatment of old courtyards has supported six communities to carry out space transformation; the “Colour for Love” ART+ urban public welfare project calls upon artists and residents to paint the walls of the community and beautify the neighbourhood environment; ② community empowerment. The Wuhou Midsummer Neighbourhood Festival has united communities, colleges, enterprises, etc. to conduct neighbourhood exchanges and created a harmonious atmosphere through concerts, neighbourhood fairs and mass sports events; the Extraordinary Significance of Public Welfare backbone cultivation project for university students has introduced the power of students to community governance, established a public welfare training camp, empowered courses that combine research and practice on a series of community issues, and organically combined the growth of students with searching and meeting community needs; ③ public service. The trust property service model is a feature and highlight of the Wuhou Community Foundation, which has sorted out the interests of the owners' assembly, residents, trust companies and property companies, and optimized the old residential areas that have been left unmanaged for a long time; the charitable trust is another innovative exploration which has not only isolated risks and



Source: Wuhou Community Development Foundation in Chengdu. URL: <https://www.cwcdf.net/>

Figure 6.8 Public welfare projects of the Wuhou Community Development Foundation

preserved and increased the value of funds and properties, but also introduced special public resources in aesthetics, sports and medical care to accelerate and optimize charity projects.

(2) Special fundraising. The Wuhou Community Foundation has tried two models: special funds/micro-funds and the Wuhou 24-hour monthly donation plan. To date, the foundation has established 11 special funds and 70 micro-funds with a total amount of over RMB 2 million. It also carries out targeted public welfare projects in sports, reading, social construction and street renewal. Some special funds for community development and governance have successfully developed a new model in which equity investment feeds back into community funds.

(3) Construction of a communication platform. Aiming at public communities, the Wuhou Community Foundation has supported the life and practice of sustainable concept followers through the Taking Root project, and further gathered practitioners of sustainable living into a community network through workshops, companionship empowerment and small grants.

In 2019, the Luxelakes Community Development

Foundation was established in Luxelakes Eco-city in Tianfu New District, the first foundation set up by a private enterprise in Sichuan Province. Real estate developers and residents have made major contributions to the launch of the foundation, and its intention is to deal with management issues after developers withdraw. Therefore, its main functions include promoting community autonomy, building a public welfare ecological chain and creating a community of communities, two of which are introduced below:

(1) Public welfare plan. The Luxelakes Community Development Foundation focuses on the cultivation of social capital and has launched five core public welfare programmes based on green environmental protection, vitality creation, innovation incubation, tolerance and resilience, child-friendliness, etc, see Figure 6.9: ① the Green Action Project focuses on the protection of the green ecology and has funded 10 projects with a total amount of RMB 820,000 including ecological wetland construction and education, birdwatching groups and community nature education bases, amongst others; ② the Islands Project is committed to stimulating the vitality of the community and has created four brand activities – the Luxelakes Fishing Festival, Luxelakes Dragon Boat Race, Luke Co-creation



Source: Luxelakes Community Development Foundation in Chengdu. URL: <http://www.cdldcf.org.cn/>

Figure 6.9 Public Welfare Projects of the Luxelakes Community Development Foundation

Night and Luke Corridor Community Documentation Exhibition, attracting a total of 100,000 participants. While enhancing neighbourhood relations, it is also an attempt to broaden the foundation's fundraising channels in multiple ways; ③ the Shimmer Project emphasizes empowering individuals and incubating innovative communities. It has funded several major projects including the Xunlu Library, Luxelakes History Project and Community Innovation Support Platform, and promoted the formation of a community of shared learning and growth through public libraries, sharing sessions, documentaries, etc; ④ The Heart Warming Project for front-line workers in epidemic prevention has received more than RMB 1 million in targeted donations and has distributed materials to epidemic prevention personnel in 49 communities; and ⑤ The Child-Friendly Community Project focuses on guiding children into the community to discover and solve problems. At present, nine public proposals have been successfully implemented, more than 40 activities have been carried out and several core activities have been formed such as the community carnival, children's council, children's sports meeting and workshops with the theme of growth education. The above-mentioned core public welfare programmes have not only met the diverse needs of the community but also cultivated a sense of ownership of the residents and created a well-ordered pattern.

(2) Mechanism construction. The Luxelakes Community Development Foundation has formed a cooperation mechanism with the Luxelakes Common Benefit Association and Luke Community Federation. The communication and dialogue of various stakeholders is supported through an open discussion and consultation platform in order to facilitate residents' self-management, self-service and self-development. The proposals discussed and considered by the Luxelakes Common Benefit Association cover various dimensions related to the public interests of the community such as community development, community vitality construction, cultural construction, services for the elderly, behavioural conventions, etc. In 2022, for example, the Luxelakes Common Benefit

Association with resident participation helped with the establishment of a water quality monitoring group focusing on public issues such as human-pet harmony and other public welfare practices. The Luke Community Federation has also been nurtured by various activities and funded by the foundation. It has cultivated 151 communities with different themes such as parent-child education, learning sharing and vitality sports. With the support of the foundation's project organization and space operation and management, the community has gradually shifted from a small-scale inward link to an outward expansion of influence.

3. Continuous expansion of cooperation network based on successful cases

As of October 2022, the nine community foundations in Chengdu (Chenghua, Jinniu, Jintang, Luxelakes, Qingbaijiang, Qionglai, Shuangliu, Wuhou and Xindu) had raised a total of RMB 47.04 million in funds and materials, and established 239 special funds including 210 community funds. They had launched more than 500 projects, connected more than 300 communities, supported more than 200 institutions (executive social organizations and social enterprises) and served more than 5 million people¹. In addition to the above contributions, these foundations have jointly initiated and established the Sichuan Community Foundation Development Network so as to actively share resources and coordinate their actions.

Reference experiences

In terms of functional orientation, institutional model fundraising and service provision, the community foundations in Chengdu have summarized fruitful experiences that have been verified in practice.

1. Clarify the functional positioning and integrate multiple roles

Community foundations play multiple roles. They inject vitality into public welfare undertakings, mobilize social capital, promote public services and resolve interest conflicts. With the mutual promotion of all these functions, a new model of sustainable and multi-

1 Jinniu Taurus Community Foundation, (2022). Jiang Wei. Community Foundations are Essential Engines of Local Vitality. WeChat public platform Public Welfare Eruption, 2022-11-30.

agent community governance has been developed. The community foundations are not limited to positioning themselves as financial institutions or executive agencies, but rather community-supporting organizations and intermediary platforms. In Jinjiang District of Chengdu, the only social organization development foundation to be established shows the importance attached to the cultivation and development of social organizations.

2. Coordinate district-level institutions and build a public welfare network that covers the entire community

Community development foundations are promoted and established by the Urban and Rural Community Development and Governance Committee of the Chengdu Municipal Committee of the Communist Party of China, and coordinated by district-level institutions. They give full play to the advantages of government, and are conducive to building a public welfare network that covers the entire community, expanding the social influence of community foundations and strengthening community funds. For these foundations, the government acts as a leader rather than a ruler. Based on hundreds of community funds, the government is guiding community foundations to serve as a pivotal platform for boosting local social governance innovations and trying to leverage "big resources" with "small funds" to spur the vitality of community governance.

3. Make innovations to community foundation operations and increase community economic resilience

Most of the initial capital for the community foundations was obtained from state-owned enterprise with the remainder from private enterprise. As a "public welfare reservoir" of the community, the community foundations mobilize internally and externally, raise funds in multiple ways and gradually form a unique financing mechanism and innovative financing model. Through innovative trust models, platform cooperation with public offering qualifications, non-targeted public donations, special funds, micro-funds, etc., they actively expand their funding channels and reduce reliance on government investment. Charitable trusts are simple to set up, flexible to operate and highly applicable. The innovative exploration of property and charitable trusts not only ensures the transparent and efficient application of client's funds but also increases the value of funds through financial institutions. The

added value can be reinvested in charitable projects thereby strengthening the autonomy and flexibility of community foundations. In addition, it builds brands, provides more resources for development and increases community economic resilience.

4. Emphasize the local needs of the community and meet multiple needs

Proceeding from the actual local conditions, the community foundations are exploring development models. They are demand-oriented, project-based and synergy-supported establishing a characteristic model of community foundations rooted in local conditions. Community foundations make precise responses to community problems and needs, solve problems on the spot through localized approaches and meet needs through diverse service projects. One of the priorities of the community foundations is to help vulnerable groups and protect their lives and rights. Special funds have been set up to incubate and support programmes and social organizations that help children with disabilities. Starting from small but practical points such as the transformation of small- and micro-activity spaces, meal assistance for the elderly, and childcare for infants and young children, they have revitalized idle space in the community and leveraged large-scale governance with micro-funds. From project design to final implementation, public services are more in line with the real needs of the community, maximizing the utilization efficiency of public service resources.

Policy suggestions

1. Maintain a flexible and variable structure for regional planning and governance policies

Contemporary scientific research has an increasingly risky and extensive interdisciplinary nature along with cumulatively significant system complexity and a high demand for investment. A city's scientific knowledge and innovation resources are limited so in the increasingly fierce global scientific competition, sustainable growth requires the continual updating of a city's knowledge base. An effective practice is to participate in cross-border cooperation and make

itself a pivotal part of the network. However, cross-border cooperation involves multiple stakeholders with varying degrees of differences in technical background, cognitive foundation, institutional framework and cultural customs which presents profound challenges. It is therefore necessary to build a flexible and variable structure for the governance of cross-border scientific and technological cooperation. The overall business goal and vision that can be supported and recognized by all parties should be determined by coordinating the differences in demands and development foundations. On this basis, all participants should be allowed to act flexibly and independently in the implementation and corresponding cooperation frameworks, and regional coordination policies should be formulated on the basis of an inclusive development pattern.

2. Policy centred on developing network governance can help build public value

In light of the digitalization of cities and governance organization, smart city platform functionality is expanding as an e-governance tool enabling information sharing, administrative efficiency, transparency and accountability, and citizen participation in governing a city. Where smart cities are emerging quickly and digital functionality is offering new network governance solutions, cities and urban actors can benefit from the proactive development of policy frameworks that support the implementation of digital governance, configuring integrated strategies that outline approaches to technology adoption, data management, service delivery and citizen engagement. The establishment of legal and regulatory frameworks will also be critical to support these efforts, notably addressing issues such as data privacy and cybersecurity as well as online transactions and e-signatures to ensure secure and trusted digital infrastructure. Hinging on inclusion principles, it is important that policy catalyses digital inclusion for marginalized populations to reduce the digital divide whilst the promotion of open data use will also instigate transparency and data sharing increasing public trust in governance and aiding decision-making that can build shared value in cities.

3. Tailor inclusive policy on public procurement that ensures transparency and multi-stakeholder participation within contracting processes

Within local governments, open approaches to public contracting fosters collaboration, transparency and innovation within public procurement processes. By formulating urban policy that capitalizes on the benefits of the digital revolution and activates the engagement of multiple stakeholders including citizens in public procurement, cities can create more accountable and inclusive procurement ecosystems, and in turn diversify supplier bases, promoting competition among vendors whereby more competitive bids can drive down costs and improve savings at the municipal level. Focused policy on open public procurement can enhance citizen trust and engagement within city governance via participatory decision-making and strengthen government accountability. Considering the financial and investment deficits facing cities and municipalities, transformative policy can here provide them with considerable benefits, reduce costs and bureaucratic inefficiencies and improve long-term budgeting, which can in turn result in a more effective allocation of available resources.

4. Encourage, guide and cultivate community foundations in government policies

In the context of a lack of resources, fund shortages, interest conflicts and action disorder, it is suggested that the municipal government consider using supporting policies and incentives to guide the establishment of community foundations and build a hub-type public welfare collaboration platform to cultivate social organizations, fund community renewal and guide multiple subjects to participate in community governance. In specific operations, measures should be taken according to the local conditions and the initial capital (registered capital) threshold for establishing a community foundation should be lowered. To solve the general and special problems of community foundations, it is recommended to adopt the development path of "government guidance + de-administration", strengthen the performance evaluation of community foundations, and improve the guidance and supervision system of community foundations. These measures will be conducive to improving the system of community foundations, building a governance structure, cultivating a public welfare ecology and maintaining the long-term stability of funds and resource support for the sustainable development of the community.

Chapter 7

International Cooperation: mobilizing resources and promoting transformative urban development



Introduction¹

As the world becomes increasingly urbanized, cities face urgent challenges from population growth, poverty and social isolation; huge mobility and environmental issues; and climate change and effective municipal services. At this pivotal moment in the global economic downturn, international cooperation among cities has never been so important for sustainable development. It can promote resource sharing, technology transfer and urban breakthroughs in resource utilization and innovation, as well as facilitating global cooperation to better resolve common dilemmas. Amid such global challenges, international cooperation can also help to implement the global agenda and strengthen the role of cities on a global scale.

The international community has attached great importance to climate adaptation and energy transition induced by climate problems in recent years. According to the sixth evaluation report published by the Intergovernmental Panel on Climate Change, there needs to be more financial support to implement solutions. Climate adaptation has been found effective in reinforcing climate resilience, however, due to capital constraints there is a considerable gap between the adaptation in reality and that in an ideal state². Engagement from various private sectors and social forces is required to realize the SDGs, while promoting South-South cooperation demands greater interaction between international organizations and private sectors on green technologies. Based on this context, balancing ecological protection and poverty reduction whilst adopting a path featured by green, low-carbon and equitable development is a problem which requires an urgent solution, one in which the accelerated and fair actions are vital to sustainable development³. In the meantime, the livelihoods of humans and the protection of the ecological environment must be given equal consideration in sustainable development. It is important to support South-South cooperation to implement the principle of common but differentiated responsibilities and through more investment in green energy and cooperation and with the aid of environment-related technologies, to benefit residents in all aspects. This promotes people-oriented action and builds adapted, climate-resilient communities which can together pursue green, low-carbon development paths.

The Myanmar Clean Energy Based Forest Protection demonstration project in Thanbayarkhon (TBK) Village, Bago Division established a partnership among NGOs, foundations and governments in different regions and countries. In this project, resources were allocated and integrated, and multilateral cooperation and resource sharing was achieved effectively mitigating the conflict between the need for natural environment protection and the guarantee of residents' livelihoods. As a result, improvements have been made in the living conditions in communities, a better protected natural environment and the use of clean energy at a larger scale.

Having established a network of urban experts, Connective Cities in Germany has demonstrated during its implementation of the risk-informed urban development in sub-Saharan Africa, the international experience shared at the local level concerning sustainable urban development under the framework of structural learning. The experience includes how to enhance urban professional knowledge and the expertise has helped mutual-sharing, mutual-learning and consultation among counterparts between urban practitioners from Germany and globally, and the joint

1 This chapter was completed by the team of Shanghai Institutes for International Studies. Team members include Zhu Yunjie, Yu Hongyuan, Liu Luying, Li Mingze, Ren Kanghua, Zhao Hanyin, Qiu Jianchang from the Shanghai Institutes for International Studies; Li Guangming, Xu Junqing, Deng Haoyuan, Yu Chaojie from the School of Environmental Science and Engineering, Tongji University; and Yu Yunhan from the Southwest Weiyu High School, Shanghai. The case of Dar es Salaam was provided by the Shanghai Municipal Engineering Design and Research Institute, written by Liu Zhao, Xiong Changxue, Fang Zhenwei, Zhang Yijun, Hua Feng, Huang Hong.

2 IPCC. Climate Change 2023 – Synthesis Report. URL: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

3 UN: Accelerating towards a fairer future. URL: <https://news.un.org/en/story/2019/12/1054411>.

development of projects.

The construction of infrastructure and connectivity are important preconditions for improving sustainable development in cities. Dar es Salaam in the United Republic of Tanzania has revolutionized urban transportation based on transit-oriented development (TOD) and boosted the local economy through innovative infrastructure. The bus rapid transit (BRT) network has significantly reduced the commuting time from the suburbs to the city centre for low- and middle-income groups, created more job opportunities and possibilities, and brought hope to disadvantaged groups in the city.

Also, the energy transition case in Pakistan shows the formula map, community benefits and social dividends of transition to green energy in the urban modernization process under South-South cooperation.

Case studies

Bago Division, Myanmar The Myanmar Clean Energy Based Forest Protection demonstration project in Thanbayarkhon village

Case background

More inclusive, greener and resilient sustainable development is an important part of international cooperation in which the establishment of a South-South platform on climate featuring openness, inclusiveness and joint engagement by all parties has been a vital link. Myanmar is a developing country with severe poverty in rural areas, under pressure from society, economy and environmental aspects. Long-term efforts are required to resolve problems such as poverty and hunger elimination.

TBK village of 357 households, located along a highway an hour's drive from Yangon, has been poverty-stricken for a long time. With poor infrastructure, the villagers live in difficult conditions, lacking potable water and power resulting in considerable difficulties in livelihoods and social development. Cooking relies on a wood fire and at night villagers have to use

candles. Due to a shortage of clean water, villagers rely on stored rainwater of inferior quality which is significantly damaging their health¹. Where the Myanmar Forest Department is trying to protect rural areas from unplanned deforestation and degradation due to subsistence-based activities, TBK village is caught in an escalating conflict between protecting resources and guaranteeing local livelihoods.

In 2014, through joint funding by the China Green Carbon Foundation (CGCF) and the Brimont Fund, the Myanmar Clean Energy Based Forest Protection demonstration project was launched by the Global Environmental Institute (GEI), establishing a partnership with NGOs, foundations and governments in different regions and countries. CGCF is a public awareness-raising foundation that takes the increase of sink, reduction of emissions and response to climate change as its primary objectives. Brimont Foundation is a California-based charity. GEI, co-facilitating implementation of the project, is committed to the settlement of environmental issues by the utilization of market mechanisms and policy proposals through which it fosters environmental protection and economic development in Africa, China and Southeast Asia². Local NGO, the Spring Foundation, devotes itself to providing support for Myanmar's communities and the development of youth education, culture, environmental protection and more.

1 Global Environment Institute. Annual Report. URL: http://www.geichina.org/annual-report/pdf/cdd_TBK_ch.pdf.

2 Global Environment Institute. About Us. URL: <http://www.geichina.org/about-us/introduction-to-gei/>.

TBK village faces a number of core challenges. A major issue lies in improving villagers' living conditions and helping them gain access to clean water and affordable energy. Under the United Nations 2030 Sustainable Development Goals, ending poverty in all its forms everywhere is deemed a priority. SDGs 6 and 7 stress clean water and sanitation, and affordable and clean energy, respectively. Basic needs of life must be addressed through an improvement in problems like insufficient resources, inferior water quality and a shortage of sanitation facilities within the parameters of development at an appropriate cost.

A second issue is protecting forest resources and reducing carbon emissions. Environmental degradation becomes irreversible the moment a certain ecological threshold is passed. The challenge for TBK village residents is to achieve a balance between forest protection and the persistent energy crisis.

The third issue is the financing for sustainable development and attracting parties to contribute. According to data from the World Bank in terms of the realization of the SDGs and autonomy for climate change adaptation in countries around the globe, less than 20 percent of capital, which aims to boost investment, is contributed by state public sectors to the initial stage of the cause. There is therefore a need for various private sectors and social forces to engage to make up for the funding gap. As a result, a prominent challenge for TBK village is how to get multiple parties engaged in the joint facilitation of dialogue on innovative solutions to local environmental protection and economic development; how to foster cooperation at the non-governmental level on the promotion of clean energy, trade and investment and on the response to climate change and enhancement of environment competence; and how to work together with local communities to boost technological development and innovation.

Implementation process

In 2014, with joint funding provided by CGCF and the

Brimont Fund, the Myanmar Clean Energy Based Forest Protection demonstration project was launched by GEI and the Spring Foundation. The objective of this project was to help residents in TBK village with the adoption of clean energy equipment such as clean power cooking stoves, solar-powered home lights and solar-power water pumps – energy consumption methods distinguished by cleanness and high efficiency. At the same time, the project aimed to protect local forest resources, cut carbon emissions and reduce pollution to improve the living conditions of all local residents, and particularly improve the health and protection of local women and children¹.

1. Achieve needs-oriented assistance through field trips and research

At the initial stage of the project, on-site trips and research led by GEI determined that the most pressing needs of local residents were clean cooking stoves, drinkable water and night-time illumination – goods donation was chosen as the most direct solution to improve the situation, see Figure 7.1. With consideration given to the cost-effectiveness of equipment and local conditions, the project team researched various products and finalized the procurement of small wood-saving stoves, as shown in Figure 7.2, solar-powered lights and a solar direct current water pump manufactured by Fuda, a Chinese brand.



Source: China Green Carbon Foundation. China-Myanmar Energy Savings and Emission Reduction – Forest Protection Village Demonstration Project successfully completed. URL: http://www.thjj.org/sf_39C54FFB00BD492DBC7E1C0A41F27535_227_D3521F8F997.html

Figure 7.1 TBK villagers receive goods donations

¹ China Green Carbon Foundation. China-Myanmar Energy Savings and Emission Reduction – Forest Protection Village Demonstration Project successfully completed. URL: http://www.thjj.org/sf_39C54FFB00BD492DBC7E1C0A41F27535_227_D3521F8F997.html.



Source: China Green Carbon Foundation. China-Myanmar Energy Savings and Emission Reduction – Forest Protection Village Demonstration Project successfully completed. URL: http://www.thjj.org/sf_39C54FFB00BD492DBC7E1C0A41F27535_227_D3521F8F997.html

Figure 7.2 Traditional cooking (left), which consumed a lot of wood and produces fumes, has been replaced by wood-saving clean stoves (right)

While selecting stoves, pollution and the mitigating capability of cooking fumes was considered with benefits like sanitation and portability not being compromised. The solar-powered lights run on sunlight – a rich energy resource in Myanmar – and the solar water pump can meet both daily demands and energy-saving requirements. A total of 180 solar-powered lights, 193 biomass cooking stoves, see Figure 7.3, and one solar-powered water pump were donated to residents who pay a small service fee

for the maintenance of the pump. Compared with other forms of cooperation, goods donation is highly efficient and achievable, giving immediate results. It directly satisfies residents' needs and offers more viable support for the balance desired by regions and countries between sustainable development and response to climate change¹. Specific measures were taken by GEI including demonstration of product use and assurance of after-sale services.



Source: http://www.thjj.org/sf_D9E898361039444084252F9018084391_227_D3521F8F997.html%E3%80%82

Figure 7.3 Solar powered lights and clean stoves

¹ China Green Carbon Foundation. Carbon Sink Foundation Myanmar-funded project to leverage China's South-South Cooperation Climate Assistance. URL: http://www.thjj.org/sf_D9E898361039444084252F9018084391_227_D3521F8F997.html.

2. Engage with local organizations to ensure project effectiveness

As detailed previously, two foundations from China and the United States of America sponsored the project and two organizations from China and Myanmar carried out the project's implementation. The project successfully demonstrated a sustainable and community-led model. Transparent and professional cooperation between NGOs and the private sector, as well as other sectors like government and enterprises, can successfully complement each other. Collaboration with the local NGO, Spring Foundation, in particular, helped to better analyse and investigate local needs, considering all factors and promoting good management of the project all the way through¹. Cooperation can also help focus more on livelihood projects closely associated with residents' daily lives through which as much support as possible could be gained from aid-recipient countries, local governments and residents. Another benefit is that as situations start to change,

the scope of foreign aid can be adjusted accordingly to strengthen the scientific nature of aid projects². The Spring Foundation played a vital role in the whole process since it distributed the donated equipment to local residents and organized training. The foundation also established a Community Guidance Committee of local residents to help villagers use and maintain donated equipment correctly³.

3. Combine intellectual enlightenment with poverty reduction and enhance follow-ups

Taking into consideration the actual conditions and cultural characteristics of TBK village, the project team, as well as distributing the much needed energy-saving equipment as shown in Figure 7.4, assisted villagers in establishing a seedling cultivation centre to plant tropical fruit trees and other economic forests to further increase their potential income. A community development fund was founded to foster poverty reduction and improve the environmental protection



Source: China Green Carbon Foundation. China-Myanmar Energy Savings and Emission Reduction – Forest Protection Village Demonstration Project successfully completed. URL: http://www.thjj.org/sf_39C54FFB00BD492DBC7E1C0A41F27535_227_D3521F8F997.html

Figure 7.4 Villagers receive wood-saving stoves amongst other goods donations

1 A Comparative Study of Clean Energy Diplomacy in Germany, the United States, Japan and India: Enlightenment to China's Green "Belt and Road Initiatives" Construction [J]. *China Soft Science*, 2020 (7): 15.

2 Environmental NGOs in International Aid: Operating Mechanism and Its Inspirations [J]. *Social Sciences Abroad*, 2021, No.343 (01): 76–84.

3 Boao Forum for Asia. URL: <https://srcic.org/upload/articles/1566/self/5d8cbcd5ee9e3.pdf>.

awareness of villagers as well as raise their willingness to participate¹.

This project has achieved significant results and its experience will be summarized and replicated. Efforts were conducive to the promotion of ecological protection ideas in less-developed regions, helping to place more focus on vulnerable groups and achieve an appropriate allocation of resources, and enabling the project team to carry out effective follow-ups.

According to statistics compared with earlier models, the new stoves are highly suitable for use in less-developed rural areas. The energy-saving stoves use one-third less firewood, and each can reduce carbon emissions equal to one ton per year. The consumption of firewood for household cooking has halved and the adoption of these new stoves is also protecting forest resources because local residents fetch firewood less frequently. It has encouraged villagers to more willingly participate in the plantation of fast-growing forests organized by the village committee – which improves forest coverage and provides villagers with abundant firewood.

To a large extent, the donated stoves have addressed health hazards from cooking for local women by improving indoor air quality². The solar-powered lights have enabled students to spend on average two hours more reading, significantly improving their academic performance. The solar-powered water pump has shortened the water-fetching distance by one mile and guaranteed residents with a supply of the clean domestic water they urgently needed³. Donating goods like solar-powered water pumps and lights has satisfied the most pressing needs of villagers for clean domestic water and daily illumination. In conclusion, the project has been of enormous significance in helping rural areas adapt to climate change, improve the local ecological environment and enhance the living quality of local villagers. Resources were allocated and

integrated, and multilateral cooperation and resource sharing were achieved⁴.

The Myanmar Clean Energy Based Forest Protection demonstration project was completed in October 2015. Project sponsors have conveyed appreciation of the success of the project and its subsequent benefits, considering the project as an excellent intervention for similar regions in Myanmar. Project sponsors aim to replicate the project in other areas to improve the living quality of more villagers, protect forest resources, improve the ecological environment and contribute to the response to climate change.

In November 2015, China and Myanmar jointly signed supplemental agreements to the memorandum of understanding on the donation of goods in response to climate change through South-South cooperation under which China's South-South Climate Cooperation Fund agreed to increase energy supplies and reduce deforestation and carbon emissions in Myanmar's rural areas in a bid to improve living conditions. China confirmed it would donate 5,000 sets of 100-watt solar-power household generation systems and 10,000 sets of clean biomass stoves, facilitating the collaboration between China and Myanmar in response to climate change. The successful signing of the agreement followed extensive research and on-site investigation in TBK village as well as continuous supervision of the project implementation².

The agreement also fostered the realization of the China-Myanmar Friendship Forest project from 2016 to date. In 2017, the China-Myanmar Demonstrative Eco-friendly Forest project, the first sub-project of the China-Myanmar Friendship Forest, was completed in Magwe Division converting the once barren land into a dense forest. In 2019, the Nay Pyi Taw Development Committee and China's embassy in Myanmar jointly planned and started the second phase of the China-Myanmar Friendship Forest planting over 3,000 trees

1 Global Environment Institute. Annual Report. URL: <http://www.geichina.org/annual-report/pdf/cdd-TBK-ch.pdf>.

2 Global Environment Institute. URL: <http://www.geichina.org/china-and-myanmar-sign-south-south-cooperation-donation-on-clean-energy/>.

3 China Green Carbon Foundation. Carbon Sink Foundation Myanmar-funded project to leverage China's South-South Cooperation Climate Assistance. URL: http://www.thjj.org/sf_D9E898361039444084252F9018084391_227_D3521F8F997.html.

4 Boao Forum for Asia. URL: <https://srcic.org/upload/articles/1566/self/5d8cbcd5ee9e3.pdf>.

such as rosewood, teak and mahogany¹. Following the donation of goods from the China South-South Climate Cooperation Fund, NGOs have further promoted the basic ideas of the intervention.

Reference experiences

1. Inclusiveness and just transition are the foundation of sustainable development in developing countries

Residents in Bago Division mainly rely on forest resources leading to an ongoing conflict between residents' livelihoods and forest conservation. Policies and external assistance, particularly financial and technological support, and help in capacity building, are required to help rural areas similar to TBK village overcome the dilemma and seek new development opportunities. Throughout the TBK village project implementation, affordability for everyone, fairness, justice and sustainable development were stressed and equality, climate justice, social justice, inclusiveness and just transition were prioritized. The success of a project requires an inclusive partnership at global, regional, national and local levels. The partnership must be established on the same principles, values, common visions and objectives centred on humankind and earth. The TBK village project has demonstrated the promotion of clean energy technologies in developing countries, reduced carbon emissions resulting from deforestation and forest degradation, and helped the mitigation of and adaptation to the impact of climate change; all of which has set a good example for other regions in Myanmar.

2. Diplomacy based on clean energy is a key link in sharing, communicating and coordinating global interests

The TBK village project is a great example of the benefits of the South-South cooperation platform, sharing experiences on research and best practices. The donation of goods is a successful example of shared diplomacy based on the desire for clean energy,

boosting the response to climate change. In the face of future carbon constraints brought about by the transition in global climate and energy patterns, any country will see its position in the transformation of international order decided largely by its competence in handling its energy saving and carbon emissions. In the advancement of the eco-friendly "Belt and Road" initiative, diplomacy based on clean energy isn't just conducive to the de-escalation of severe energy and geographic security situations in regions, it is also helpful to promote the sharing of benefits brought by green energy as well as increase the affinity and trust between one country and its neighbours². Through relevant platforms under the United Nations South-South Cooperation (UNOSSC), one country can optimize diplomatic approaches, deepen cooperation and engage in discussions on clean energy in an environment of openness and inclusiveness. In the development of diplomacy based on clean energy and the supply of green products to the public³, the initiative of governments at all levels will be brought into play. It is also important to allocate the resources of private sectors and social capital. This is an approach guided by a "small efforts for big achievements" policy that can provide more financing opportunities for the overseas development of clean energy projects.

3. Cooperation among multiple interested parties facilitates resource integration and project implementation

Cooperation involving multiple parties is conducive to the integration of various resources. The cooperation between interested organizations contributed to the success of the project in TBK village, in which both NGOs and the private sector played a vital role. NGOs boast authoritative knowledge, professional competence and social network resources that can help countries formulate scientific policies and improve state governance. In many developing countries, NGOs are key implementors in climate governance and clean energy development projects as these organizations are often equipped with strong social

1 Ministry of Foreign Affairs of the People's Republic of China. URL: https://www.fmprc.gov.cn/web/gjhdq_676201/gj_676203/yz_676205/1206_676788/1206x2_676808/201908/t20190830_9300885.shtml.

2 A Comparative Study of Clean Energy Diplomacy in Germany, the United States, Japan and India: Enlightenment to China's Green "Belt and Road Initiatives" Construction [J]. *China Soft Science*, 2020 (7): 15.

3 On the construction of China's Green Finance System [J]. *Finance Forum*, 2015 (5): 18–27.

mobilization and influence on public opinion¹. It needs to be stressed that there is an increasing investment of manpower and material and financial resources from environmental NGOs in international aid which has yielded substantial rewards in fields such as environment governance, education on ecological protection, development of rural areas and agriculture, medical care and sanitation, and humanitarian relief, helping them gain more acknowledgment or appreciation from the public in developing countries and increase their international influences and appeal. Working hand in hand can extend cooperation risks and prevent disordered competition through a cautious collaboration strategy². The TBK village project served the local residents directly and promoted the establishment of the community with a shared future via approaches such as a regional project of clean energy involving multiple parties and innovation on community relief and governance. Green public diplomacy can build a supplementary model between governments and businesses, increase the focus on vulnerable groups and realize the allocation of green resources based on energy justice.

Connective Cities, Germany The international community of practice for sustainable urban development

Case background

Connective Cities is a cooperation project financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) and jointly implemented by the Deutscher Städtetag, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Engagement Global and its partner, the Service Agency Communities in One World. With BMZ as the lead executing agency, Connective Cities focuses on implementation and aims to exchange experience

and good practices with regard to sustainable urban development, facilitating mutual learning and developing ideas for urban projects³. In the face of global development, inclusive, productive, efficient and resilient cities must tackle transformations which can be effectively supported by utilizing joint learning processes. The project calls for efficient and innovative solutions to ensure sustainable urban development. The project's ultimate objective is that through efforts from different parties, long-term and stable support can be offered to sustainable urban development, and all city residents can share the benefits of development equally³.

Connective Cities as an international community of practice uses dialogue and learning formats to mobilize German and international know-how. It provides a portal for disseminating experiences of practical relevance so urban stakeholders from politics and administration, industry, science and civil society representing various regions worldwide are networked with one another at the expert level. They focus on implementation, exchange experience and good practices with regard to sustainable urban development, and learn together and develop ideas for urban projects. The community of practice identifies and interlinks relevant actors from developing, emerging and industrialized countries, promotes and moderates thematic and regional working groups, facilitates information exchange through international conferences, training courses, study trips and other activities, supports the secondment of municipal experts to partner countries, and provides assistance with the drafting of concepts and funding applications for innovative projects, and evaluates new project approaches to help make use of lessons learned. From 2014–2022, Connective Cities conducted 223 events and attracted 3,720 participating practitioners and, until 29 May 2023, a total of 104 countries have been involved in Connective Cities' activities benefiting 692 cities in total. This project has co-developed

1 International Nongovernmental Organizations and Global Climate Governance [J]. *Global Review*, 2018, 10 (05): 136–156.

2 Sabel F. Charles, Victor G. David. Governing global problems under uncertainty: Making bottom-up climate policy work [J]. *Climatic Change*, 2017(144):15–27.

3 GIZ. Connective Cities – international community of practice for sustainable urban development. URL: <https://www.giz.de/en/worldwide/29306.html>.

and supported project ideas and published 167 good practices¹.

Since it was officially launched in 2014, Connective Cities has mobilized more than 500 municipal actors from around 20 countries in Africa, Asia, Europe and Latin America using over 20 dialogue and learning formats to share experience and learn together. So far, more than 80 German municipal experts have registered in the platform's pool of experts. The Connective Cities web portal provides information and virtual services to network municipal practitioners with over 10,000 users. More than 30 examples of good practices have been entered into the database and are

available for dissemination.

Since July 2019, Connective Cities events have linked different stakeholders in sub-Saharan Africa, see Figures 7.5 and 7.6. Among them are representatives from both the public and private sectors, civil society and research institutions. The main objective is to provide a platform for practitioners from cities and municipalities in the region to develop locally adapted solutions for sustainable urban development drawing on regional and international expertise².

Most cities in Southern Africa are plagued by extreme rainfall and flooding. Priority is given to the secondary

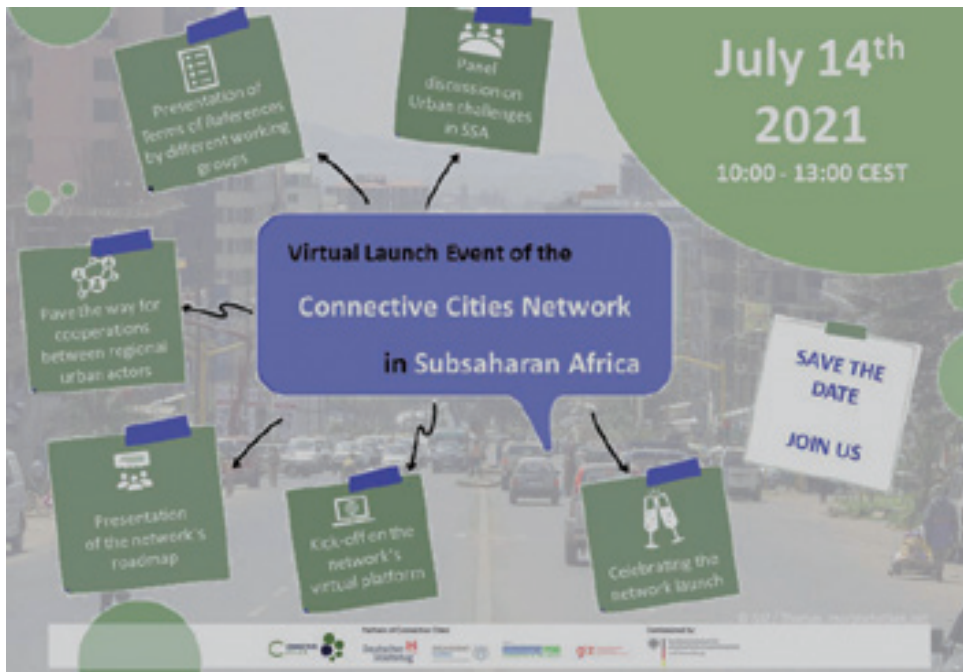


Source: Connective Cities. Network in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/network/network-in-sub-saharan-africa#c18689>

Figure 7.5 Project distribution in sub-Saharan Africa

1 Connective Cities. URL: <https://www.connective-cities.net/en/about-us/impact>.

2 Connective Cities. Official Launch of the Connective Cities Network in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/news/official-launch-of-the-connective-cities-network-in-sub-saharan-africa>.



Source: Connective Cities. Official Launch of the Connective Cities Network in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/news/official-launch-of-the-connective-cities-network-in-sub-saharan-africa>

Figure 7.6 Connective Cities launch event, 2021: Together for sustainable urban development

hazards associated with weather events and the systemic and cascading nature of the hazards instead of the rain and floods themselves. With regard to this specific context in Southern Africa, Connective Cities contributes to project ideas for early-stage technical assistance on sustainable urban development and climate change adaptation, the development of scalable and replicable solutions to natural disasters in Southern

African cities, and the promotion of discussion and peer-to-peer exchanges among German and Southern African cities, creating a network of experts and practitioners to address flooding and extreme rainfall events as shown in Figure 7.7, water and wastewater management, and adaptation to climate vulnerabilities to ultimately build up resilience and risk governance within the region.



Source: Connective Cities. Risk Informed Urban Development in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/events/documentation/regional-project-workshops/risk-informed-urban-development-in-sub-saharan-africa>

Figure 7.7 The impact of extreme rainfall and flooding on the majority of cities in Southern Africa recorded by WG-RIUD

Implementation process

Since risks, ambiguity and uncertainties must be integrated into the planning and financing processes of various sectors, and the competencies and institutional capacities of decision-makers need to be strengthened towards risk informed development, the Connective

Cities GIZ cooperation programmes and Global Initiative on Disaster Risk Management (GIDRM) established the Working Group of Risk-Informed Urban Development in Sub-Saharan Africa (WG-RIUD) on the International Day for Disaster Risk Reduction, see Figure 7.8.



Source: Connective Cities. Risk Informed Urban Development in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/events/documentation/regional-project-workshops/risk-informed-urban-development-in-sub-saharan-africa>

Figure 7.8 Working Group of Risk-Informed Urban Development is a joint initiative between Connective Cities and the Global Initiative on Disaster Risk Management

1. Working group formed by representatives from multiple countries and industries

The objective of WG-RIUD is to assist in formulating sustainable urban development solutions suitable for local natural and economic conditions. The aim from exchanges among members in WG-RIUD is: to develop scalable and replicable solutions for risk-informed urban development; foster discussion and peer-to-peer exchange amongst, in this project case, German and Southern African cities; and to create a network of experts and practitioners to address flooding and extreme rainfall events, water and wastewater management, and adaptation to climate vulnerabilities to ultimately build up resilience and risk governance within the region.

The guiding principles of WG-RIUD include fostering peer-to-peer exchange amongst the members of the working groups and gaining valuable insights on good practices of risk-informed development, which can be implemented in the urban fabric of member cities. Member cities also present themselves as a valuable network in which members have access to various experts, agencies and networks on Risk-Informed Urban Development (RIUD). A reference library of tools, methods, guidelines, codes and/or documents will

also be created to provide information on good and practical risk-informed urban development practice. Through the exchanges of the working group, the aims are: to inspire member cities to submit a project funding proposal to the City Climate Finance Gap Fund; the development of evidence-based arguments for crafting messages to encourage RIUD and disaster risk management in cities; and the establishment of networks with relevant local authorities and exchanges of experiences on coordination with different administrative units and levels.

WG-RIUD is comprised of representatives from 14 countries and 21 cities, and includes a great diversity from sectors such as infrastructure, spatial planning, urban development and public works; energy and climate change; environment; urban and rural development; housing; legislation and policy-making; finance and administration; information and communication technology; education and training; municipal associations; and disaster risk management, civil security, fire brigade and rescue services.

The University of Free State-Disaster Management Training and Education Centre (UFS-DiMTEC) in Bloemfontein and the Southern African Development

Community Disaster Risk Reduction Unit (SADC-DRR Unit) are also WG-RIUD members. UFS-DiMTEC is responsible for providing expertise in the risk-informed field, helping to develop applications that specifically address the gaps and needs of WG-RIUD member cities, above all equipping and recommending professionals in disaster management who actively contribute to disaster risk reduction and management. It also engages in disaster risk reduction and disaster management consultancy projects, and research in line with environmental, social, economic and political changes¹. SADC-DRR Unit is responsible for reviewing

WG-RIUD communication results and conveying them to members, focusing on the coordination of stakeholders throughout the process to ensure that the results can be assimilated from the national level to the local level. SADC-DRR Unit affects the main interests of the entire WG-RIUD work process, but in general, the role played by SADC is less proactive as its Disaster Risk Reduction Unit mainly participates in the work of the Working Group of African Connective Cities on a macro level, focusing on improving resilience against floods and extreme weather events at the municipal level, see Figure 7.9.



Source: Connective Cities. Risk Informed Urban Development in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/events/documentation/regional-project-workshops/risk-informed-urban-development-in-sub-saharan-africa>

Figure 7.9 The structure of the Working Group on Risk-Informed Urban Development in Southern Africa

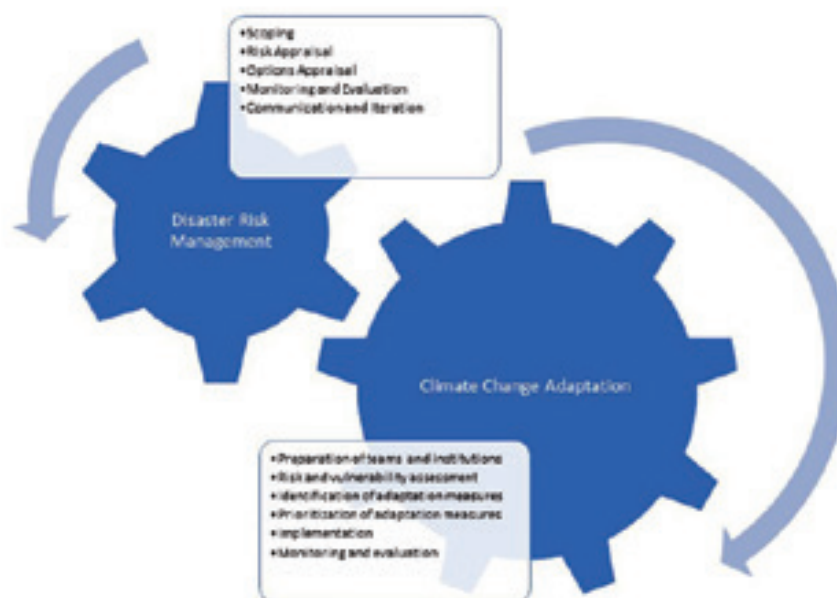
2. Risk-based decision-making framework to facilitate coordination and communication

WG-RIUD communicates and coordinates within a risk-based decision-making framework that guides decision-makers in the form of a roadmap to understand the multifaceted and complex nature of the multiple

threats, risks and opportunities facing development decision-making.

The framework has five focuses as shown in Figure 7.10: (1) scoping – identify key stakeholders, capabilities, and existing legal and institutional frameworks; (2) risk

¹ University of the Free State. URL: <https://www.ufs.ac.za/natagri/departments-and-divisions/disaster-management-training-and-education-centre-for-africa-home>.



Source: Connective Cities. Risk Informed Urban Development in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/events/documentation/regional-project-workshops/risk-informed-urban-development-in-sub-saharan-africa>

Figure 7.10 Risk-Informed Urban Development Capitalizes on the Synergy Between Disaster Risk Management and Climate Change Adaptation

appraisal – identify and estimate risks; (3) options appraisal – screen development options against various criteria and evaluate the most effective path forward; (4) monitoring and evaluation – establish a system to evaluate the performance of the development options to be implemented; and (5) communication and iteration – improve mutual transparency and regular communication among multiple stakeholders in the decision-making process. More specifically with regard to Southern Africa:

(1) Scoping

Working group members and academic representatives from DiMTEC provided insights into the guiding questions. They pointed out that DiMTEC has collaborated with municipalities, local institutions and the private sector to drive the Disaster Risk Reduction (DRR) agenda forward. Four pillars of action under DiMTEC's DRM approach include: ① teaching and learning; ② research; ③ community engagement; and ④ leadership and administration¹.

(2) Risk appraisal

DiMTEC suggested other disaster risk assessment frameworks such as Community-based resilience analysis, Technical Assistance to NGOs and the Community Capital Framework. DiMTEC also offered several tools for risk assessment from Bonn's disaster risk management institutions. The flooding which took place in Durban, South Africa during April 2022 displays the growing relevance and need for risk-informed development².

(3) Options appraisal

At the eighth session of WG-RIUD on 15 June 2022 under the theme "Options Appraisal", working group members and city representatives from Zomba, Malawi highlighted the following: Zomba is often ravaged by frequent flashfloods and exposed to hazards including earthquakes, landslides, rock avalanches and strong winds. Zomba's City Council did not have capacity to identify these hazards, initially. In partnership with the Adaptation Fund, Zomba developed a resilience action

1 GIZ. https://www.connective-cities.net/fileStorage/Veranstaltungen/RIUD-SSA/RIUD_News_WG03_2022-03-30.pdf.

2 GIZ. https://www.connective-cities.net/fileStorage/Veranstaltungen/RIUD-SSA/RIUD_News_WG04_2022-04-13.pdf.

plan in 2016. This action plan highlights and addresses hazard-exposed areas and low-level risks¹.

(4) Communication and iteration

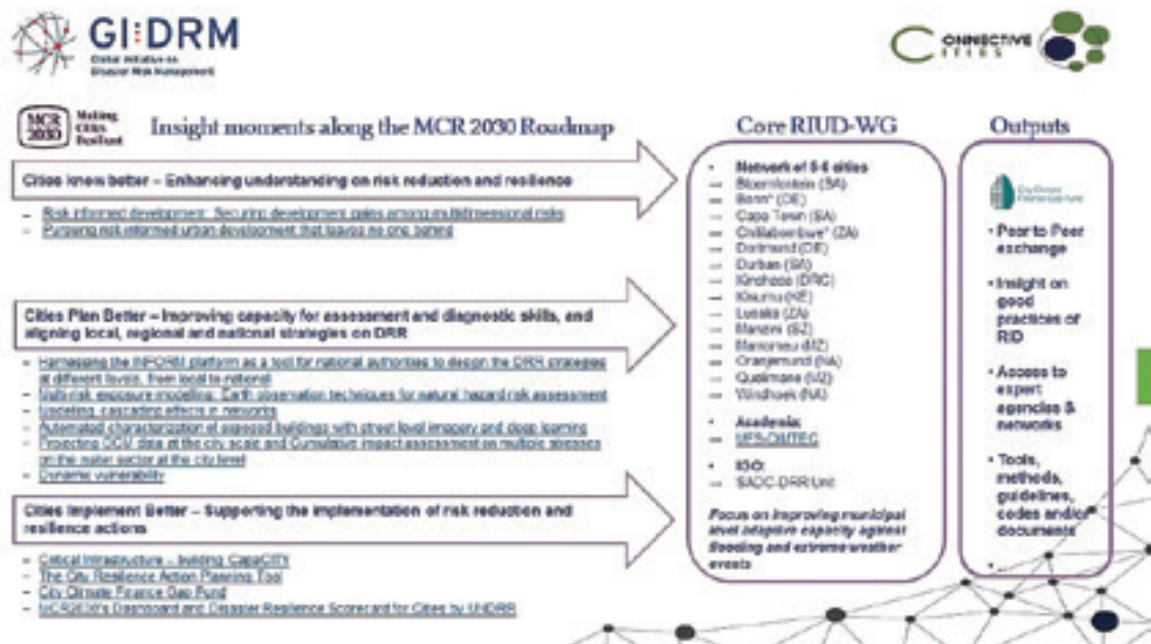
At the eleventh session of WG-RIUD on 12 July 2022 under the theme of Communication and Iteration, Mr. Kiss Brian Abraham, a renowned political cartoonist from Zambia, highlighted the following during his interactive presentation, Active Observation on Climate Change. Climate change is one of the most profound social, political and economic issues of our time. The poorest and marginalized (women, children, youths) are most affected by crises and climate change threatens their livelihoods. Active citizenship involves citizens' awareness of their role in their community. It means understanding collective responsibility but also the importance of personal/individual contributions to a better society².

3. The Insight Moments initiative expands the synergy of the city communication platform

In order to expand synergies with the Connective

Cities exchange platform, seek inter-city learning opportunities and propose a global initiative to strengthen decision-makers to promote risk-informed development (RID), WG-RIUD launched the Insight Moments programme which focuses on addressing various gaps, constraints and difficulties of member cities. Insight Moments is based on the Making Cities Resilient 2030 framework (MCR2030) of the United Nations Office for Disaster Risk Reduction which refers to its planning, flexibility and linear iteration method to build a three-stage resilience roadmap to support cities in reducing risks and building resilience, see Figure 7.11. This includes understanding RID, improving risk assessment and implementing RID in cities. One of the main objectives of the joint initiative of GIDRM is to mainstream RID into urban planning and decision-making. MCR2030 has made a substantial contribution to connective cities and the realization of this initiative.

The SDGs require all parties to strive for efficient use and optimal allocation of resources. On the one hand, strengthening financial support for sustainable



Source: Connective Cities. Risk Informed Urban Development in Sub-Saharan Africa. URL: <https://www.connective-cities.net/en/events/documentation/regional-project-workshops/risk-informed-urban-development-in-sub-saharan-africa>

Figure 7.11 Insight Moments along the MCR 2030 Roadmap

1 GIZ. https://www.connective-cities.net/fileStorage/Veranstaltungen/RIUD-SSA/RIUD_News_WG07_2022-06-15.pdf.

2 GIZ. https://www.connective-cities.net/fileStorage/Veranstaltungen/RIUD-SSA/RIUD_News_WG11_2022-07-12.pdf.

urban development can accelerate recovery from the current severe global economic crisis. On the other hand, organic integration of physical, intellectual and social capitals, etc., is critical to long-term sustainable development. Sustainable urban development aims to create communities in which everyone can participate through active efforts in all aspects. Connective Cities promotes the worldwide exchange of municipal expertise and, with their services, supports peer learning and collegial consultation between German and international urban practitioners as well as the development of joint projects. The goal is to network urban actors from administration, politics and business, science and civil society at a high professional level. Through dialogue and learning programmes such as workshops, training courses and study tours, international expertise is mobilized and experiences are shared. Good practices enable practitioners to learn from one another. In discussions, colleagues offer advice on options to address topical challenges faced by practitioners, and common project ideas point towards developmental approaches and innovative solutions. In this manner, the experience gained by urban actors in Africa, Asia, Europe and Latin America is disseminated and contributes to international learning processes. The continuous orientation of the International Community of Practice for Sustainable Urban Development on sharing practice-oriented experience via effective and applied solutions supports a learning process that consistently draws on practice and creates new synergies. Connective Cities acts as a facilitator, mediator and moderator of these processes¹.

Reference experiences

Globalization promotes city networks – sustainable city development is highly dependent on global cooperation. There are currently many local initiatives aimed at promoting sustainable urban development. These strategies are in the areas of sustainable mobility, urban and regional economic promotion, energy efficiency and responsible urban governance. They are innovative and have proven successful, but

they are often not well known enough to systematically capture these practice-focused solutions and relevant connections.

1. City networks promote knowledge sharing among all parties

Collaboration facilitates knowledge sharing among countries and cities facing different challenges and opportunities thereby avoiding duplication of efforts and mistakes, and making sustainable development more efficient. International organizations, inter-governmental cooperation mechanisms and inter-city exchange platforms have all built valuable channels for countries to learn from each other's successful experiences and jointly explore solutions in urban planning, environmental protection and resource management.

2. International cooperation promotes the spread of technology and innovation

Technological innovation is crucial to sustainable urban development and international cooperation facilitates the dissemination of technologies and innovations, and helps countries and cities with relatively scarce resources with the latest sustainable development technologies and practices, thereby accelerating their sustainable development.

3. International cooperation supports target cities with funding and investment opportunities

Sustainable urban development relies on long-term capital input and international investment, but many developing countries and regions lack funds. International cooperation can contribute to cities' sustainable development through financial assistance, launching cooperative projects and attracting foreign investment. Global financial institutions, multinational corporations, and governments and organizations of developed countries can all promote green transformation and sustainable growth of cities through the flow of capital and investment to the construction of sustainable urban development.

¹ Connective Cities. Our Mission. URL: <https://www.connective-cities.net/en/about-us/our-mission>.

Dar es Salaam, the United Republic of Tanzania

Transit-oriented urban mobility transformation

Case background

Dar es Salaam is the largest city in the United Republic of Tanzania and the country's main commercial port on the Indian Ocean. Importing goods and exporting minerals and agricultural crops, it is the hub of the national transportation system. In light of the city's development priorities and population growth, traffic congestion has become a major problem for citizens. In around 2010, more than 120,000 private cars contributed to traffic congestion in the city every day, and there were large areas of traffic congestion even during weekends. Recent research by the Centre for Economic Prosperity shows that a 16 km journey that takes a car two hours could take as little as 15 minutes if there were no traffic jams.

In 2012, Dar es Salaam's population was approximately 4.4 million with an average annual growth rate of 5.6 percent: it is expected to reach 10 million by 2030¹. Rapid population and private car growth along with inadequate urban planning have resulted in continuing serious traffic problems in the city. A total of 6,600 private buses (dala dala)² with an individual capacity of 15 to 30 passengers are the mainstay of Dar es Salaam's public transport network. While they meet the travel needs of specific groups to a certain extent, the disordered and irregular quality of their operation under privatized management interferes with the normal traffic flows leading to more congestion and increased road accidents.

With an urban road density of 1.0km/km² and four main roads, several important intersections not only undertake huge passenger flows between the suburbs and the urban area, but also connect the inland areas

with the freight logistics distribution network of the port. At the most congested intersection, Ubungo, the traffic volume exceeds 6,000 vehicles per hour during the peak period, and the average waiting delay for each vehicle at the intersection is about 711 seconds³, resulting in serious regional economic losses and ecological environmental pollution. With the rapid expansion of the population, urban vulnerable groups are increasingly dependent on public transport, however, the lack of financial resources, density of buildings and lack of urban management capacity limits the carrying capacity of traffic and infrastructure development. The population of Ubungo District accounted for about 20 percent of the entire urban population in 2012, and solving the increasingly serious traffic congestion has become an ever more urgent need for the local area and the entire city in recent decades.

In 2007 in view of the traffic challenges, Dar es Salaam began to develop a bus rapid transit (BRT)-oriented urban development strategy and planned the six-phase construction of a BRT corridor network of a total length of 140.1 km that covers 90 percent of the city's population. Phase 1 of the system was implemented under the second Central Transport Corridor Project (CTCP2)⁴ supported by the World Bank, reducing the average travel time in this corridor from two hours to 45 ~ 50 minutes. In September 2012, the President of the United Republic of Tanzania was briefed on the design scheme of the Ubungo intersection during Phase 1's groundbreaking ceremony. He supported the idea of building an interchange at the intersection and indicated that financial support would be sought. Before the Belt and Road Initiative was proposed by China in 2013, the project was mainly financed by international multilateral financial institutions such as the World Bank and African Development Bank. Construction of the 266 m interchange is being undertaken by the China Civil Engineering Construction Corporation.

1 Tanzania National Bureau of Statistics. URL: <https://www.nbs.go.tz/>.

2 Asad. J. (2019). Transforming Urban Transport –The Role of Political Leadership (TUT-POL) Sub-Saharan Africa. URL: https://research.gsd.harvard.edu/tut/files/2020/07/Dar-es-Salam-Tanzania_Case_10.31.19.pdf.

3 Dar es Salaam Urban Transport Improvement Project Concept Note.

4 World Bank Group. Independent Evaluation Group. TZ-Second Central Transport Corridor Project. URL: <https://documents1.worldbank.org/curated/en/155141526651078531/pdf/Tanzania-TZ-Second-Central-Transport-Corridor.pdf>.

The Ubungo intersection, as shown in Figure 7.12, is a key point in the BRT network planning associated with Phase 1, Phase 4 spur and Phase 5 of the BRT corridor. Several major sub-projects have also been established in the general framework to: (1) continue to strengthen the construction of the Phase 3 and

Phase 4 infrastructure of the BRT system, application of intelligent transportation systems and integrated transit-oriented development (TOD) along the corridor; (2) improve and enhance road safety features at the Ubungo intersection and along the Phase 1 corridor; and (3) strengthen and reform institutions.



Source: China Civil Engineering Construction Corporation
 Figure 7.12 The Ubungo intersection before its renovation

Implementation process

1. Building partnerships¹

The government established the Dar es Salaam Urban Transport Improvement Project (DUTP)² within the framework of the World Bank with credit financing through the International Development Association, and adopted the World Bank's standard procurement procedures to implement the project.

The goal of DUPT is to reach and connect commercial centres, schools, hospitals and other key locations in the city by introducing BRT to reduce traffic congestion

thereby transforming intersections, improving urban traffic and boosting businesses around the city. The goal of this project is consistent with the World Bank's urban transportation development strategy which particularly emphasizes that "in order to improve transportation efficiency, the needs of each mode such as road system, slow traffic system, public transportation system, and mass transportation system must be met, and special attention should be paid to the role of the private sector". This project is also in line with the concept of the World Bank's Africa Climate Business Plan for Accelerating Climate Resilient and Low Carbon Development³, which

1 World Bank Group. (2017). Time is money: improve road traffic conditions in Dar es Salaam and reduce traffic congestion. URL: <https://www.shihang.org/zh/news/feature/2017/03/27/time-is-money-transforming-dar-es-salaams-road-transport-to-reduce-dense-traffic>.

2 World Bank Group. Dar es Salaam Urban Transport Improvement Project. URL: <https://projects.worldbank.org/en/projects-operations/project-detail/P150937>.

3 World Bank Group. (2018). Accelerating Climate-Resilient and Low-Carbon Development. URL: <https://openknowledge.worldbank.org/server/api/core/bitstreams/4002a815-268a-53a3-9dee-fcfb880f606b/content>.

particularly emphasizes “supporting the development of climate-friendly urban transport solutions such as BRT”.

Funds for the preliminary research and preparation of DUPT are provided by CTCP2. The cost of the relocation and land acquisition involved in the project is about USD 28.5 million, allocated from government budgets. Funding for the other parts of the project totals approximately USD 425 million – 225 million from International Development Association Credit and 200 million from International Development Association Extended Credit. According to the economic analysis and evaluation of a 10-year operation period, the internal rate of return of the project’s BRT corridor will be 22.5 percent. The Ubungo interchange system can lower the delay time of each vehicle at the intersection from 711 seconds to 12 ~ 45 seconds while greatly reducing fuel consumption. In addition, the Ubungo interchange system is crucial to the successful operation of the BRT network throughout the city. The internal rate of return evaluated in a 20-year operating cycle will be 25.7 to 40.7 percent.

2. Equitable distribution of right of way in urban infrastructure design and construction

The Ubungo intersection is the most prioritized and important sub-project of DUTP. It is a challenge to ensure the smooth flow of ordinary passenger and freight traffic, and priority for the BRT system, as well as equitably allocating the right of way for the two independent transportation systems.

In the most original design idea for the Ubungo intersection, a traffic signal system is added to ensure priority right of way for the BRT system. In this original scheme, all social vehicles are not allowed to turn right, and right-turning vehicles must first turn left and then make a U-turn to the intersection. This design scheme is very inconvenient for social vehicles, and still easily causes traffic jams at the intersection. In the initial design stage after the approval of DUTP, a double-level interchange scheme was proposed in which the

interchange was for social vehicles only, and BRT was still on the ground. However, the design of the second level was unreasonable because the overly complex shape increased its construction difficulty and the double-level interchange could not guarantee the smooth passage of turning vehicles. Overly complex piers might also increase the risks for BRT on the ground.

Although this scheme was approved by the World Bank and used in subsequent tenders, the contractor proposed design changes. The new design is still a double-level interchange, but two of the six lanes per level are dedicated to BRT. Social vehicles turn on the ground floor, and large-span bridges and turn signals are used at each intersection to ensure the smooth flow of turning vehicles, see Figure 7.13. The new design scheme not only equitably distributes the right of way to social vehicles and the BRT system, but also minimizes the impact on traffic in all directions. The new design has been approved by the World Bank.

3. Facilitating transit-oriented development through bus rapid transit

Phases 3 and 4 of the BRT system will be constructed within the DUTP framework, and then a public transport corridor network will be established. The transit network will not only reduce travel time but also catalyse urban growth as economic activity and land values along the corridor increase.

The Ubungo hub is a regional centre for commerce and institutions, and a regional hub for transportation and logistics, so it is an ideal TOD location, see Figure 7.14. The government plans to introduce private developers to the hub to create a commercial complex including offices, retail, commercial housing and affordable housing¹. After the development is completed, affordable housing will be provided to the government free of charge so as to improve the housing conditions of low- and middle-income groups, creating a large number of jobs along the line and helping to build liveable communities along the corridor and around the stations.

1 World Bank Group. (2018). Global Platform for Sustainable Cities GPSC African Regional Workshop. The Development of the Dar es Salaam Bus Rapid Transit (BRD) system. URL: https://www.thegpsc.org/sites/gpsc/files/partnerdocs/dar_es_salaam_brt_system_and_improvements_through_tod_final-_abidjan.pdf.



Source: National Roads Agency

Figure 7.13 Social vehicles and bus rapid transit share right of way at interchange



Source: URL: Dar es Salaam Metropolitan Development Project

Figure 7.14 Transit-oriented development in the Ubungo District

The development along the line has attracted passenger flow to a certain extent, improved the financial viability of public transport and reduced subsidies for public transport. In the DUTP framework, the government conducts research and market research on selected TOD areas through top international consulting companies, evaluates the market's interest in the development of projects along the line and ensures that these projects can respond to the market demand and successfully attract high-quality investors¹.

4. Strengthening the capacity of public transport development and implementing agencies

Another major challenge facing Dar es Salaam is the local government structure. The city is made up of five municipalities, each with a mayor, led by the Dar es Salaam City Council. The municipal government has a high degree of autonomy and can report directly to the President's Office and the regional government, meaning the city council has no direct influence on the activities of the city government. The distribution of responsibilities in the transport department is also decentralized, and there are currently 14 traffic management departments in Dar es Salaam, each responsible for a part of the road network. The Master Plan for Urban Transport in Dar es Salaam launched in 2008 proposes to establish a unified Dar es Salaam urban transport management agency to build urban transport in a sustainable manner. An important purpose of DUTP is to strengthen the capacity of public transport executive-oriented institutions, reorganize the BRT management department and establish an open data system for urban public transport.

As one of the major complex projects being implemented in the United Republic of Tanzania, DUTP has achieved the following results: (1) it has drastically improved the traffic service level, raising that of the most congested intersection from Class F to Class B. According to traffic simulation analysis, it will still meet traffic demands up to 2037²; (2) it facilitates a transit-oriented strategy, transforms the development pattern

of the entire city from a single radial to a strategic corridor and enhances the value of land use along the corridor. A virtuous cycle of transit-oriented economic development has begun as ordinary citizens have the opportunity to invest alongside private capital in developments along the corridor; and (3) it has enhanced the local construction industry and economic vitality. Not only are steel bars, cement, PVC and steel pipes purchased locally in the United Republic of Tanzania, but native companies also act as local subcontractors for the relocation of public facilities and geotechnical engineering surveys. In addition, they provide training and technology transfer to local university students and engineers³, empowering local engineers to deal with similar projects in the future.

Reference experiences

Bus rapid transit-oriented cities are more likely to finance infrastructure innovations

Compared with the renewal of other urban transportation systems, such as a large number of urban road network upgrades, interchange construction and subway construction, the BRT system takes into account the travel needs of low-income groups while reducing costs. As it is in line with the concept of many institutions "to enable residents to choose more efficient and environmentally friendly public transportation or freight transportation through traffic management and the use of clean energy", it is easier to obtain financing from international multilateral organizations such as the World Bank, regional development banks, United Nations organizations, and bilateral agencies such as the Swedish International Development Corporation Agency and Japan International Cooperation Agency. Because BRT-oriented innovations do not risk significant financial debt for developing countries, these agencies generally view such changes as scalable options. Such international changeable institutions have long-term cooperative relationships with the world's top experts, which is what government

1 World Bank Group. (2023). Dar es Salaam Urban Transport Improvement Project. URL: <https://projects.worldbank.org/en/projects-operations/procurement-detail/OP00224330>.

2 Traffic Analysis Report, 2018, China Civil Engineering Construction Corporation.

3 Construction of Ubungu Interchange – An Overview of Technical Aspects of its Implementation, TANROADS.

agencies in developing countries lack. Therefore, being noticed by the international community will help recipient countries to obtain more assistance from international experts.

Private investors are also extremely interested in the development of public transport. Private bus operators see urban public transport systems as a way to transform and improve their own profitability. They transition from informal minibuses (such as the *dala dala* in Dar es Salaam) to regular operations and share in the profits from the operation. Private passenger car manufacturers sell more new vehicles because of the construction of the public transportation system, so they are more willing to bear the risk of the investment and operation of vehicles.

The construction of an effective urban system involves more than just BRT. Taking DUTP as an example, the construction of the BRT system is also accompanied by the transformation of congested nodes, reconstruction

of roads and drainage facilities, and relocation of existing water supply, electricity, communication and natural gas, so it can drive the renewal of the overall infrastructure of the region.

The Ubungu intersection is a microcosm of the joint projects between China and the United Republic of Tanzania to promote the industrialization and modernization of local infrastructure. Over the past decade as the Belt and Road Initiative has transformed from concept and blueprint into reality, participating parties have jointly established supporting mechanisms such as the Asian Infrastructure Investment Bank, BRICS New Development Bank and Silk Road Fund. These place equal emphasis on the social and economic benefits of projects, and focus on funding those that are “beneficial to the people’s livelihood” “small yet beautiful” and “conducive to sustainable infrastructure development” thereby effectively improving the financing possibilities of projects.

Local energy transformation in Pakistan through international cooperation

Facing a severe energy crisis, Pakistan is lagging behind in its energy transformation. A lack of fossil energy, especially coal suitable for power generation, has led to a reliance on high-cost imported oil and gas¹, and lagging power generation capacity. Electricity shortages have cut industrial efficiency and led to electricity being mainly supplied to cities and some rural areas, triggering local protests. In addition, the insufficient development potential of local renewable resources such as solar energy, wind energy and biomass², lagging power grid construction, and severe

power transmission losses also need to be solved urgently³.

Pakistan has gradually reversed its disadvantages in the power industry through international cooperation in building infrastructure. The country has huge potential for wind resources⁴. Located in Sindh, the United Energy JHIMPIR Wind Power Project has a total installed capacity of 99 MW, 66 1.5 MW wind turbines at an investment amount of USD 260 million. At the beginning of 2014, it was included among the

1 He Xu, Ruo Xizi. Analysis of Pakistan Electricity Market and China-Pakistan Nuclear Power Cooperation Strategy [J]. *China Nuclear Power*, 2021, 14(5): 716–719.

2 Siddique S, Wazir R. A review of the wind power developments in Pakistan [J]. *Renewable and Sustainable Energy Reviews*, 2016, 57: 351–361.

3 Pakistan’s largest power outage since its founding, Pakistani officials blame failure of power transmission system, *Global Times*. URL: <https://3w.huanqiu.com/a/de583b/41SxuCOhVXe>.

4 Pakistan Wind Power Project. International Project Contracting & Labour Service, URL: <https://mp.weixin.qq.com/s/QpOb00kai81kXJej0tJCMg>.

key energy projects promoted by the two countries in the China-Pakistan Economic Corridor¹. At 12:00 local time on 15 June, the JHIMPIR Wind Power Project completed its 168-hour trial operation and obtained a Commercial Operation Date certificate. This exercise marked the official connection of the project to the grid and the start of its commercial operation. The 99.89 percent availability rate of the project's wind turbine equipment is much higher than the 85 percent required by the Environmental Protection Agency. It has been highly praised by the National Grid of Pakistan for its engineering quality and equipment performance. With an estimated power generation capacity of 274.782 million kW·h, it will benefit 500,000 local households with electricity and alleviate local power shortages in the country. Facing local employment difficulties, the JHIMPIR Wind Power Project has always insisted on localized operations. It has employed more than 800 locals and lifted many families out of poverty due to their increased income. Currently, 150 locals work at the project site. In addition to wind power projects, United Energy Pakistan Limited, an oil and natural gas project developed by China Oriental Group Co., Ltd. in Pakistan, has achieved 100 percent localization of employees where all 870 of its employees are from the surrounding community².

Taking full advantage of international strategic cooperation opportunities is of great significance for the local energy transformation and sustainable power supply chains. Full use should be made of

opportunities for strategic cooperation among countries such as those in the China-Pakistan Economic Corridor. International cooperation is crucial for energy infrastructure construction which promotes the gradual transition of Pakistan's domestic power system from primary energy power generation to thermal, wind, solar, nuclear and other multi-energy power generation. The promotion of transnational investment should be combined with an emphasis on localized operations. In the framework of international cooperation, financial and investment institutions can support the transformation of urban energy infrastructure and promote the development of related industries. In sustainable urban development, international financial institutions, multinational companies, and governments and organizations in developed countries can all accelerate the green transformation and sustainable growth of cities through the flow of capital and investment. In Pakistan, the power system that underpins cities is directly related to the quality of life, economic prosperity and environmental sustainability. Power supply chain security should be combined with carbon emission reduction. In the dilemma of insufficient traditional thermal power and aging power transmission facilities, Pakistan has vigorously developed infrastructure such as hydropower, solar energy and nuclear power through international cooperation while also updating the urban power supply system, achieving simultaneous improvements in clean energy and the people livelihood.

Policy suggestions

1. Establish a multi-level and multi-stakeholder international urban cooperation network for the sharing and exchange of experiences, cases and best practices in sustainable urban development, as well as the

transfer and innovation of knowledge and technology

The international urban cooperation network should be premised on common principles and values, and rooted in a common vision and goals oriented towards people and the planet. It should respect all parties' diversity and differences to promote mutual trust and mutual benefit. Existing platforms and mechanisms are more conducive to increasing cities' flexibility and innovation

1 Orient Group. (2017). United Energy JHIMPIR Wind Power Project, a new achievement in China-Pakistan teamwork, starts commercial operation. URL: http://www.china-orientgroup.com/content/details_25_1577.html.

2 Belt and Road Portal. (2017). The largest wind power project in the China-Pakistan Economic Corridor was completed and put into operation. URL: <https://www.yidaiyilu.gov.cn/xwzx/roll/25729.htm>.

opportunities in international network cooperation. For example, new models and channels can be explored in the frameworks of UNOSSC and Connective Cities to form a network of urban experts and urban communities of practice. The cooperation network construction also emphasizes effectiveness and sustainability. International resources and knowledge can be mobilized through dialogue and learning to build a portal for informative experiences. It supports municipal experts' secondment to partner countries, assists in drafting concepts and funding applications for innovative projects, locates funding for project ideas, and evaluates creative project approaches to leverage lessons learned.

2. Introduce market mechanisms and policy incentives, mobilize the private sector and social forces to participate in urban climate adaptation and energy transition projects, and provide diversified financing channels and risk sharing mechanisms

The introduction of market mechanisms and policy incentives refers to stimulating and guiding the investment and innovation willingness of the private sector and social forces through the formulation and implementation of regulations, standards, taxes, subsidies, price signals and other means that are conducive to urban climate adaptation and energy transformation, thereby strengthening the economic and social benefits of urban projects. Mobilizing the private sector and social forces to participate in urban climate adaptation and energy transition projects requires the establishment of a platform and mechanism for multi-party cooperation to attract and utilize capital, technology, management and other resources of the private sector and social forces to support the design, implementation, operation and maintenance of urban projects at various stages, thereby increasing the diversity and sustainability of

urban projects. Providing diversified financing channels and risk sharing mechanisms refers to stabilizing and enriching funding sources for urban projects by innovating and expanding financing models such as public-private partnerships, green bonds, carbon trading and climate funds. It also calls for reducing the risk cost of urban projects and improving their attractiveness and feasibility by establishing systems for risk assessment, insurance, guarantees, etc.

3. Change the urban infrastructure investment model through regional transit-oriented development, promote sustainable development, fair distribution and commercial prosperity along transportation lines, alleviate traffic congestion, and meet the travel needs of low- and middle-income groups.

It is recommended to change the investment model of urban infrastructure through regional TOD to achieve sustainable development and financially affordable infrastructure services. Public funds can be combined with private capital to integrate land and commercial resources along transportation lines, establish commercial complexes and accelerate commercial prosperity and land value appreciation, which will in turn increase funding for public infrastructure development. It is also recommended to emphasize equity when distributing urban infrastructure to create a sustainable city that takes all groups into account. In rapidly emerging developing countries, BRT-oriented urban development strategies can effectively solve the problems caused by private cars and population growth. This strategy can help to equitably allocate urban infrastructure space, meet the travel needs of low- and middle-income groups and disadvantaged groups, and avoid more serious traffic congestion. In some East African countries, the BRT system has proven to be an effective solution to urban transportation problems.

Financing sustainable urban development



Introduction¹

This chapter explores the role of urban financing in unlocking the transformative potential of cities and advancing sustainable urbanization. Highlighting the core challenges and opportunities surrounding urban development financing as well as the means by which access to financing for urban development can be increased, the intention of this chapter is to identify the connections between the pathways of economic transition, multi-level governance and development financing, navigating the intricacies of these financing processes within the context of urbanization. As a practical guide, the chapter also presents a number of tools offered by UN-Habitat which are available to help municipalities around the world to unlock financing opportunities.

Background

The landscape of urban financing and investment has undoubtedly experienced considerable transformation in the last decade impacted by constrained budgets, expanding and ageing infrastructure, the acceleration of climate change, technological developments and an improved understanding of how municipal initiatives can achieve sustainable and equitable urban development. Where budgets were further tightened through reduced local taxation and income in tandem with increased emergency expenditure on medical and social care as a result of the COVID-19 pandemic, cities are still feeling these effects, and there is now a compelling need to rethink urban funding in order to rebuild in alignment with the SDGs and the New Urban Agenda. Critically, underinvestment comes at a high price whereby poorly planned and managed cities largely underperform in regard to competitiveness, and are subject to low employment rates, lower qualities of life and contribute less to national GDP. Accordingly, when acknowledging that global challenges such as tackling poverty, reducing inequalities and mitigating the climate crisis will be won or lost in cities, financing sustainable urbanization will be an investment for the present and future. To achieve quality urbanization, municipalities require large-scale investment along with strategic planning

and institutional support, with clearly delineated responsibilities, effective coordination and efficient cooperation among governance systems. Substantial internal and external resources are therefore required, and strengthening urban financing is essential to positively shape the trajectory of urban growth, enabling the roll out of sustainable urban development initiatives such as infrastructure development, housing and service delivery, sanitation, energy and water supply, transport and mobility, as well as economic growth and resilience building measures. Channelling investment into the most productive urban assets is, therefore, key to effectively enhance the financial position of cities supplemented by secure budgetary management, the development of stable revenue streams and enhanced urban planning. A core priority for municipal governments is to solidify their financial and institutional mechanisms in order to enable them to better perform their essential functions.

Addressing the urban financing gap

Globally, there is a huge gap in urban development financing between developing and developed nations jeopardizing economic development, improved productivity and living standards, and consequently the aspirations of sustainable development. With a projected USD 15 trillion global investment gap in the years up to 2040, it is imperative that this deficit is addressed to meet the infrastructure demands

¹ This chapter was written by UN-Habitat experts.

of urbanization at the local level in a sustainable manner¹. The world is therefore pressed to increase the scale and efficiency of urban development financing, recognizing it as a productive investment with the ability to facilitate and unlock endogenous growth. Whilst the quantity of investment needed is vast, high-quality urbanization can catalyse huge benefits which, over the long-term, will significantly outweigh short-term costs. With stagnated and declining progress on the SDGs, adequate financing serves as the core means by which cities can accelerate the localization of the SDGs, and it is now that cities and human settlements should be considered in SDG financing as both recipients and enablers within this process. Consequently, there is an urgent need to rethink the underlying financial architecture and lever new tools to help develop cities in which new financing systems must integrate frameworks that attract investment and improve urban projects. The United Nations Secretary-General, Mr António Guterres, stated that “long-term and predictable financing mechanisms for the implementation and monitoring of the New Urban Agenda, including the capacity of subnational governments to raise revenue from their own sources, should be created.” It is integral that collectively, the world now works towards ensuring high-quality financing for urban development, prioritizing the equitable allocation of resources to allow urban planning and development to unfold sustainability, and in a way in which no one is left behind.

Challenges and strategies in financing for sustainable urban development

Effectively financing the development of cities and municipalities is subject to a number of barriers. Issues such as funding gaps, budgetary constraints and

limited access to capital, a lack of institutional capacity and minimal private sector engagement, as well as high upfront costs and complex financing mechanisms continue to slow progress on sustainable urbanization. To navigate and negate these challenges, it is essential that urban actors and development partners now focus on achieving coherence among all component parts to create coordinated and integrated financing systems. By focusing on financing holistically, cities can begin to leverage a diverse range of funding sources including public funds, private investments, loans and grants, as well as international support. Accordingly, by pooling resources, municipalities can maximize their financial capacity and distribute funds to a variety of projects and initiatives which can facilitate more integrated and comprehensive urban development planning. Integrated financing systems can help to deliver joined up planning, encouraging urban areas to recognize the interconnectivity between sectors and thus tackle multiple urban challenges head on. Where finance can be allocated based on the priority needs and long-term objectives of municipalities, this in turn serves to ensure that resources are channelled to the most impactful urban development projects, helping to prevent the fragmentation of funding allocations.

Creating the enabling conditions to align development goals and institutions

To attract initial investment, the impact and potential of sustainable urban development must be fully recognized. As a prerequisite to unlock its capacity as a core driver of productivity and a vehicle by which to advance national development goals, anchoring sustainable urbanization into national development policies and more closely relating it to national primary structural transformation priorities is key. Given the scale of urbanization in rapidly developing regions, in particular, affording it a more significant, strategic and multisectoral focus within national development planning is increasingly important. Integrated national financing frameworks may operate as tools to finance development priorities and thus operationalize the Addis Ababa Agenda at the national level². To

1 World Economic Forum, (2022). Rethinking City Revenue and Finance Insight Report. https://www3.weforum.org/docs/WEF_C4IR_GFC_on_Cities_Finance_2022.pdf.

2 Integrated National Financing Frameworks, (2019). Financing for Sustainable Development Report. <https://inff.org/>.

successfully implement coordinated, integrated and multi-sectoral national development policies, it is important that each tier of government contains functioning institutions that are responsible for governing development and development financing. This entails the establishment of transparent and effective governance and policy institutions, seeking to harmonize development goals territorially and coordinate implementation at national, regional and local levels. It is also important to recognize that the need to create effective enabling environments for urban development investment should not result in the retraction or delay of critical development financing where drawn-out periods of institutional development are taking place. Where very few low-income countries have such fully developed and operational environments, governments and urban development partners should still be encouraged to invest in urgent municipal development matters when supported by good planning and design, solid procurement and secure financing mechanisms.

In this regard, the development of structured and effective regulatory frameworks will be integral to create environments that are conducive to shaping sustainable and effective urban investment mechanisms. Impacting the feasibility, attractiveness and efficiency of financing options for urban projects when well-designed, institutional and policy reforms can build investor confidence, streamline approval processes and enhance accountability within local development processes. However, it is important to recognize that existing regulations, when complex and inflexible, can hinder the production of innovative financing models and discourage private sector engagement. There is a pressing need for policy reforms that align regulatory frameworks with sustainable urban development goals, simplifying permitting procedures, promoting clear land use regulations and incentivizing green financing initiatives. In addition, effective institutional reforms can support revenue mobilization, providing cities with the sufficient fiscal autonomy needed to experiment with new financing instruments such as municipal bonds and land-value capture, whilst also offering them the leverage to restructure their tax systems in alignment with core economic foundations. Respectively, by designing flexible and forward-looking regulatory environments, cities and municipalities can

catalyse an enabling landscape that unlocks diverse sources of financing and accelerates the roll-out of sustainable urban development projects.

Addressing issues of capacity and coordination across governments

To support the necessary enabling frameworks and reforms at institutional and policy levels, it is critical that governments still possess sufficient implementation capacities and coordination mechanisms. Globally, many cities are hindered by limited capacity and poor collaboration between government institutions, and where it is commonplace for national governments to maintain control of urban development works, delegation to subnational levels is often opposed as a result of disorganization, a lack of resources and a lack of willingness to lead at the municipal level. The lack of capacity and coherence among the diverse network of actors involved impairs the feasibility and commercial viability of new municipal projects, especially among low-income developing nations. Where technical skills and resources are more scarcely dispersed within the global south, this leads to frequent issues of isolation among urban actors, reducing the possibility to deliver meaningful responses to urban challenges. In turn, this amplifies and lengthens the persistence of the challenges, becoming more problematic over time. A lack of decentralization has also been cited as a barrier to urban development funding by many actors, specifically with respect to instances of minimal political autonomy and deficient administrative capacity within subnational governments. However, it must also be recognized that decentralization can indeed bring with it negative impacts including the undermining of macroeconomic control and greater income inequalities at the regional level. Instilling multi-level and multi-sector governance coordination and cooperation mechanisms are key to financing effective urban investment and managing revenues, alongside the creation of the required enabling conditions for policies and implementing institutions. Where levels of decentralization vary across governance contexts, coordination mechanisms will better organize the activities carried out among actors involved in different networks, ensuring key connections are established among the core processes of decentralization and therefore more effective

financing. In light of bolstering long-term approaches to strategic urban development, fostering alignment between municipal finance and urban spatial planning is equally necessary for governments to establish key priorities and better integrate long-term investment requirements into budget plans, acknowledging the interdependence between municipal projects.

Where many municipalities are faced with limited budgets due to competing development priorities, this makes the allocation of funds more difficult for complex projects. Macroeconomic factors such as economic downturns and inflation can further strain available budgets, limiting the capacity to fund long-term urban projects, hitting those municipalities in lower-income countries the hardest. The trade-off between addressing immediate needs and long-term project investment therefore underscores the balance that urban policymakers must strike. To overcome these obstacles, both financial experts, urban planners and policymakers play pivotal roles in fostering conducive environments to enable the facilitation of municipal initiatives by utilizing available resources strategically. Accordingly, the exploration of strategies including the prioritization of high-social returns projects, multi-year budgeting, revenue stream diversification and innovative fiscal policies can all support municipalities in this manner, whilst the incorporation of technology-enabled fiscal management, performance-based budgeting and transparent expenditure emerge as instrumental in optimizing resource allocations whilst upholding fiscal responsibility. To gain investor confidence, cities must also seek to mitigate the financial risks associated with investment in development initiatives. As urban areas face uncertainties such as economic fluctuations and unforeseen project challenges, risk management strategies must be devised to attract investors and financing support. Both risk assessment and modelling tools can help municipalities to identify possible vulnerabilities and devise risk mitigation strategies, whilst public-private partnerships (PPPs) also function as avenues for risk sharing where private entities assume certain project risks and hence decrease the burden on public funds. The development of contingency funds within project budgets can also help to cushion against unexpected financial setbacks. In combination with risk mitigation, securing long-term

financial sustainability remains integral; facilitated via the adoption of transparent budgetary practices, proper debt management and revenue diversification. By combining commitments to financial sustainability with risk mitigation strategies, municipalities can better navigate uncertainties and build successful urban development investments.

Ensuring equitable and inclusive financing and investment

In alignment with the premise of sustainable urban development itself, ensuring that urban financing contributes to promoting equity in cities catalyses social change and drives transformative recoveries, is now critical yet it remains a complex process that is often overlooked. Where traditional financing models frequently neglect the needs of marginalized urban communities perpetuating disparities, this necessitates the importance of new innovative and proactive strategies that benefit these communities directly. Along with social impact assessments, participatory budgeting and community engagement processes allow the voices and needs of local community members to be heard, helping to shape investment priorities. By implementing inclusive financing strategies, municipalities can allocate resources to initiatives that will improve the quality of life for all residents and address urban inequalities. However, where these instances are often exaggerated in low-income cities, it is important to recognize that a fundamental challenge lies around issues of long-term debt infrastructure in poor and informal areas in which the populations provide minimal tax revenue contributions and possess limited financial capacity to meet repayments. In these contexts where the need for development collides with significant economic and fiscal constraints, financial mechanisms require redesign that can bridge this gap, ensuring that critical development projects can go ahead without disproportionately burdening those individuals who are already disadvantaged. Accordingly, infrastructure delivery should correspond to the needs of all citizens including the most vulnerable. Cities can lever the economic benefits that arise from new infrastructure, introducing life-cycle costs, supporting sustainable infrastructure investment principles and in turn reduce the infrastructure investment gap through the

integration of equitable development investments.

Enhancing access to finance for sustainable urban development

Where cities strive to balance the needs of their citizens with the limitations of finite resources, the ability to secure access to, and direct a diverse range of financing and investment sources, becomes fundamental to develop financial sustainability and resilience. Whilst it is clear that existing urban financing mechanisms require substantial transformation to successfully execute municipal initiatives, unlocking new avenues of funding is an imperative process to effectively advance global urban development agendas, and as such, is a critical area for urban development actors to explore. Given the consensus on project preparation and structuring in addition to sufficient risk allocation and robust procurement processes, governments possess the chance to innovate in financing, in which local governments are at the core. Focusing on independent financing mechanisms and tools, this section presents measures that can help municipalities increase their access to finance.

Strengthening internal funding

Developing robust internal financing mechanisms is essential for municipalities to make effective headway on sustainable urban development. Typically generated via government revenue, local taxation and other domestic sources, internal funding serves as a sustainable and stable source of funding for cities and municipalities. As a consistent monetary source, it promotes greater local ownership and control of urban development projects and enables municipalities to respond quickly to emerging challenges and needs. A trusted reliance on internal funding encourages

municipal governments to enhance their own governance structures and financial management practices whereby a solid internal finance system is the backbone of a city's ability to advance its own local development agenda.

Facilitating the flow of funds between different tiers of government, intergovernmental fiscal transfers serve as integral internal financing mechanisms, and as such reinstate the importance of fostering solid relations between national and subnational levels of government. Often acting as the core foundations for financing sustainable urbanization where subnational governments possess a limited means of generating revenue, intergovernmental transfers can help to address vertical imbalances where there are disparities in revenue-generating capacities between different levels of government, allowing them to deliver development projects that align with local needs. They also help to build fiscal equity and by reallocating resources from wealthier regions to those with reduced financial capacity, they help to ensure that urban development equally benefits disadvantaged communities for balanced growth. As integral elements for municipal financing, improving the management of intergovernmental transfers again highlights the need to instigate reform at the national level to facilitate the appropriate incentives for cities and local governments. Where subnational governments possess reduced capacities, intergovernmental transfers function as integral financial architecture components to local development projects. It is important to note that developing countries are far more dependent on transfers generating approximately 2.3 percent of GDP from their own revenues compared to 6.4 percent in developed countries. At the international level, intergovernmental transfers represent the primary source of subnational government revenue at 51 percent¹. This showcases the varying tax revenue generating capacities that different subnational governments possess, and hence the varying degrees of reliance on central government financing. Equally, it highlights the importance of intergovernmental transfers in balancing territorial development where it is important to highlight that the devolution of national

¹ UN-Habitat, (2021). Financing Sustainable Urban Development.

tax revenues to the local level can indeed stimulate economic growth within cities. As a result, central governments can also benefit from agglomeration effects and economies of scale in the delivery of goods and services across municipalities. Despite the impact of intergovernmental transfer in addressing regional disparities and supporting the mandate of municipal governments, it is critical that transfers are allocated equitably and aligned with local priorities, in which transparent transfer systems and performance reviews are utilized to ensure investment adheres to public financial management standards.

Considering limited revenue generation at the local level, the enhancement, diversification and optimization of own source revenues (OSR)¹, is also paramount to foster sustainable long-term approaches and improve their financial positioning. In the context of decentralization, for local governments to effectively garner responsibility in service and project delivery, they must possess sufficient OSR. To facilitate this, improving compliance and streamlining tax policy are highly pertinent, both of which can only be instigated via strong leadership, political will and the ability to navigate vested interests. OSR is not only necessary to fund existing expenditure within local governments but also in supporting infrastructure investment. In the

absence of reliance on national transfers, it promotes operational continuity and enables local governments to respond to citizen needs with greater agility, in which a stronger dependence on OSR strengthens accountability within local governments. Reflecting the disparity in OSR generation, local governments in developing countries generate far lower OSR per capita, approximately USD 12 per capita per annum compared to USD 2,944 in high-income countries², and as such face significant challenges when leveraging it as a financing tool. Revenues from property taxes – a key provider of OSRs – account for less than 0.3 percent of GDP in low-income countries, whilst high-income countries generate around 2 percent³, an issue stemming from poor land ownership records, and a lack of clear property rights and enforcement mechanisms. Issues of poor tax authority and a lack of tax capacity and policy specifically, have also been identified as important factors in the poor use and underperformance of OSRs⁴. As corruption and coercion in local OSR mechanisms also constitute significant barriers in low-income countries, this reiterates the necessity to establish political accountability and transparent OSR systems in which digitalization can play a key role, for example, utilizing digital payment collection.

UN-Habitat Rapid Own Source Revenue Analysis tool

The UN-Habitat Rapid Own Source Revenue Analysis (ROSRA) tool supports municipal governments in optimizing their OSR's through the quantification of revenue leakages and deconstruction of bottlenecks to identify underlying causes and reform entry points. By supporting local revenue administrators in improving understanding and communicating weaknesses within

their OSR systems, the tool promotes strategic and resource effective interventions, helping to instigate reform momentum within local governments. By effectively consolidating international best practices on OSR, the ROSRA tool strengthens municipal foundations within local governments, enhances creditworthiness and allows local governments to

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- 1 Own source revenues refer to those stemming from taxes, licences, fees and charges that are controlled and levied by municipal governments.
 - 2 Bardhan, P. K. and D. Mookherjee. (Eds.), (2006). *Decentralization and local governance in developing countries: a comparative perspective*. MIT Press.; Shah, A. (Ed.), (2006). *Local governance in developing countries*. The World Bank. Tanzi, V., (2001). *Pitfalls on the Road to Fiscal Decentralization*, WP of Economic Reform Project no. 19, GPP, Carnegie Endowment.
 - 3 Kelly, R., R. White and A. Anand, (2020). *Property Tax Diagnostic Manual*, World Bank, Washington, DC: <https://openknowledge.worldbank.org/handle/10986/34793>.
 - 4 ICTD/UNU-WIDER, (2020). *Government Revenue Dataset 2020*. (Merged).; OECD/UCLG (2016), *Subnational Governments around the world: Structure and finance*.

better access and utilize external resources to fund their own local development.

The tool is especially pertinent for subnational and local governments in secondary cities and in developing countries. UN-Habitat leverages the tool to deliver a more transparent and equitable OSR mechanism and in turn help citizens to better understand their tax obligations and align their economic decisions accordingly. UN-Habitat is positioned to apply the ROSRA tool cost-effectively to provide local governments with strategic insights into OSR optimization, and offers support via the implementation of recommendations, acting as a long-term ally to partners.

The tool's methodology contains a gap and profitability analysis per revenue stream, as well as a more granular process of deconstruction of core revenue streams to identify dependencies and determine useful reform entry points. It is important to note that the success of this service can be measured via: annual OSR per capita; the annual OSR/annual budget of revenue administration or annual OSR from the top five revenue streams/total annual OSR; as well as the tax incidence by income group (property tax/annual OSR or property tax areas/annual OSR which can be used as proxy indicators).

As one of the most valuable assets that municipalities possess, land holds significant potential as a component to self-finance local governments. Land-based financing operates as one of the most promising sources of OSR with proven success as a tax base in many countries, yet it remains underleveraged as a means to enhance urban governance. Innovations in technology have opened up the possibility to increase the implementation of land-based financing mechanisms, yet successful integration will also require local governments to increase their capacities, encourage experimentation and overcome resistance from landowners. Consequently, working towards administrative reform at the beginning of new administrative cycles, capacity building, technical innovation and increased political incentives are key.

Land-based financing is especially significant given the disparity in subnational tax revenue property tax allocations between developing and least developed countries (22 percent) and upper and middle-income countries (39 percent)¹. Implementation faces a number of challenges including complex and informal land tenure systems, a lack of tenure security, inefficient property addressing systems and a limited professional capacity in surveying and valuation. In light of these hurdles, cities are investigating innovative means to register land, value properties and facilitate tax payments. GIS mapping offers a rapid and low-cost method to geo-located properties to establish up-to-date digital land and property records. The successful integration of these mechanisms may extend before revenue generation alone and also improve urban planning and management, land administration, financing for tenure security upgrading in low-income neighbourhoods and generating credit whilst facilitating more robust land rights.

When managed correctly, both land and property taxes therefore offer fair and efficient means of taxation. Via land value capture, local governments can obtain a portion of the land value appreciation that has arisen from improved public infrastructure, amenities investments and growing urban populations. Subsequently, these revenues can be reinvested, further driving up land values to develop a cyclical, self-funding urban development cycle. Municipalities can tap into a sustainable stream of income via strategic land management and development. By leasing or selling government-owned land for commercial, residential and industrial functions local authorities can attract private sector investments in addition to creating job opportunities, boosting local economies. Smart land-use planning allows for the establishment of mixed-use zones, facilitating a diverse range of revenue-generating activities. By capitalizing upon land assets, local governments can thus not only enhance their financial self-reliance but also foster balanced urban growth and provide a platform for funding key public services and infrastructure projects, ultimately cultivating more vibrant and self-sufficient communities.

¹ Farvacque-Vitkovic, C. D. and Kopanyi, M. The World Bank, (2014). Municipal finances: A handbook for local governments.

UN-Habitat land-based financing tools

To improve the availability of resources for local development by leveraging land, UN-Habitat offers a flexible set of instruments that can be adapted to a diversity of institutional and cultural contexts. Enhancing local finances and the ability to improve infrastructure and service provision at the local level can present extensive social and economic benefits. When compared to other popular revenue streams, land-based financing typically increases the progressivity of the tax system, consequently promoting equity. It has fewer negative impacts than other revenue tools and can help generate symbiotic relationships of accountability between governments and local resident communities.

Importantly, the service supports both national and local governments, impacted residents, and international and local partners to address municipal finance issues in the delivery of infrastructure and essential services in addition to cultivating social contract and improved governance for all. The

service leverages UN-Habitat's innovation-based land financing tools and strategies, as well as a comprehensive body of knowledge developed under a growing connection of international, pilot country and city partnerships. The service increases revenue collection via land-based financing mechanisms, local expenditure of generated revenue from the provision of infrastructure and essential services, including participation from the most affected and marginalized populations. The services adopt an inclusive approach to land tenure across the full continuum of land rights and encourages innovative approaches, acknowledging the right of occupants as much as land owners.

The service integrates both: (1) leveraging land: land-based finance for local governments; and (2) a set of nine instructional videos on a range of land-based finance tools by which local governments can capitalize on land to grow their revenue base to finance urban development and the delivery of key services to all.

Strengthening external finance

Pivotal to advancing sustainable urbanization, obtaining access to external financing is a necessity to bridge financing gaps between cities, scale-up the impact of urban projects, harness innovation and expertise and capitalize upon synergies between partners and sectors. Where many cities face resource constraints and are far away from generating sufficient revenues alone, acquiring external financing injects capital into urban development projects which may otherwise be delayed, scaled-down or unfeasible, thus filling financing gaps where internal revenues fail to cover costs. Accordingly, via external financing, cities can lever private investments, limit the burden on public budgets and advance the implementation of key development projects with the support of international organizations, foreign governments, development banks and private investors. However, where low-

income countries find it more difficult to attract external capital, this section presents some of the core mechanisms by which this process can be promoted in developing and emerging economies.

The ability of municipalities to effectively access financial markets is largely dictated by the level of decentralization at the national level as well as the legal rights of the municipality to borrow. Municipalities themselves must be able to maintain sustainable revenue generation and develop bankable initiatives achieved via secure and consistent revenue streams, and efficient revenue collection. However, for many local governments, access to finance stifles the implementation of sustainable urbanization projects. In fact, within emerging economies, only 4 percent of the 500 largest cities are classed as creditworthy for investment in international financing markets¹. Equally,

1 World Bank, (2015). City Creditworthiness Initiative: A Partnership to Deliver Municipal Finance: <https://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative>.

those municipalities that are deemed creditworthy, typically lie in jurisdictions which possess clear rules on tax sharing, clear policy frameworks, statutory limits and transparent payment transfer agreements, and approval systems between local and national levels for municipal borrowing. Borrowing at the subnational level, however, is often restricted by legal and regulatory hurdles that protect against unsustainable debt obligations. Insufficient revenue streams, limited financial management capacity and the lack of any prior application of external financing tools in tandem with under-developed laws and governing institutions often prevent many low-income cities from exploring these interventions and from taking on debt. To address these barriers, legal reforms may be necessary to grant cities the authority to borrow or expand their borrowing scope, yet local governments must ensure that they maintain sound financial management practices, control budgets and debt levels, and demonstrate a history of responsible financial practices. To this end, municipalities may integrate measures to maximize cash efficiency and asset management, rationalize expenditure and facilitate debt planning. Fostering a culture of transparency and accountability in financial reporting can help to ensure that associated data is accessible to the public and additional stakeholders thus building trust and credibility. The development of efficient tax revenue collection systems increases the reliability of income streams to cater for debt repayment, whilst long-term financial plans that align with their development objectives can advance the delivery of key municipal initiatives.

To effectively implement projects at the local level, ensuring project bankability is another critical component to attract the needed capital injections from external development partners. Where local governments, particularly within developing economies, frequently lack the capacity to secure project viability as well as the experience to fully understand the wants of investors, this remains a stumbling block that impedes access to funding. It is common for such capacity gaps to stem from a lack of long-term foresight in strategic plans, the absence of feasibility studies and limited or no experience in developing financial models and control systems. To counteract these issues, necessary project preparation will smoothen development processes in which clearly

defined project objectives are supported by feasibility studies to firstly assess the technical and financial viability of projects and secondly identify risks to inform mitigation strategies. It is recognized that in many instances, project preparation can be initiated via external support, specifically in the development of feasibility studies and capacity building activities. It is important that such support adopts a long-term approach, cooperating with municipalities to strengthen their capacity to create bankable projects internally moving forward.

It is evident that where bankable municipal projects are generated along with the development of robust and transparent OSR, intergovernmental fiscal transfers and sound financial management strategies, investment risks within the control of the municipality are significantly reduced. External macroeconomic risks, however, still remain such as currency exchange fluctuations, interest rates, inflation and economic cycles. Considering that investment poses particular risks for investors and debtors in low-income countries with budgetary constraints, innovative approaches are required. International financial institutions (IFIs) can provide support via blending grant finance, catalytic capital injections, technical support and the promotion of credit quality improvement at the local level, focusing on funding project cash flow whilst navigating existing regulatory frameworks. The use of blended finance mechanisms via public and private loans, and other guarantees from IFIs, have been deployed in a number of urban projects to help reduce both real and perceived investor risks decreasing investment costs and assuring investors a minimum repayment. However, to implement this as a tool, municipalities must secure a solid pipeline of projects that can be presented with confidence to investors and financial institutions to gain buy in. In addition, the use of budget support offers another means by which to reduce investment risk by strengthening budgetary frameworks and thus investor environments, whereby it can be integrated with blended approaches to capitalize upon synergies for greater impact.

Considering the scale of funding required to realize sustainable cities, mobilizing private sector investment in urban infrastructure development is vital. Traditionally, the public sector has provided urban

infrastructure and services, however, this falls far short on what is required to unlock the full potential of urbanization. When managed well, PPPs operate as highly impactful strategies to gather resources and expertise, presenting opportunities to combine assets and knowledge that would simply not be possible by either sector in isolation. Pre-pandemic, private infrastructure investment in primary markets was stagnated at around USD 100 ~ 150 billion per annum globally, lower than 10 years prior, and this was followed by a 6.5 percent decline from 2019–2020¹. Complex PPP procedures have been deemed a major contributing factor for this decline, particularly regarding those with higher risk profiles impacting project bankability. Private finance is also extremely limited in the developing world due to deficiencies in creditworthiness and underdeveloped financial markets as well as limited institutional capacity to “ready” projects and weak regulatory environments managing PPPs. Of the cities in developing and emerging economies working with the World Bank, just 6 percent have a record of successfully issuing municipal bonds². However, working in siloes is no longer a viable option where urgent action on financing is essential. New systems which enable private investors to commit and partner with municipal governments must therefore be sought where municipalities instil proper legal mechanisms which safeguard private sector investment, agile procurement systems as well as policies and incentives for national public-private cooperation. Local governments must also demonstrate political will, engaging professionally with the private sector through project preparation and design phases. Critically, PPPs will allow for risk to be shared in municipal financing processes so long as transparent and streamlined regulatory frameworks are established which clearly divide the roles, responsibilities and risk sharing agreements between public and private partners, and can boost investor confidence and reduce uncertainties for external financiers.

UN-Habitat financing tools and frameworks for slum upgrading

With 1 billion people living in slums globally, the magnitude of overcoming these challenges is widely recognized and financing is required at an unprecedented scale. Nonetheless, the economic potential of slums as an informal markets remains unaddressed. As an untapped avenue, UN-Habitat is implementing and supporting tools and services for financing slum upgrading including: (1) innovative financing tools and public-private-people-partnerships (PPPPs) to support financing frameworks; (2) community managed funds and establishing PPPPs, and (3) market studies to identify innovations and opportunities for investment for slum upgrading and prevention, see Figure 8.1.

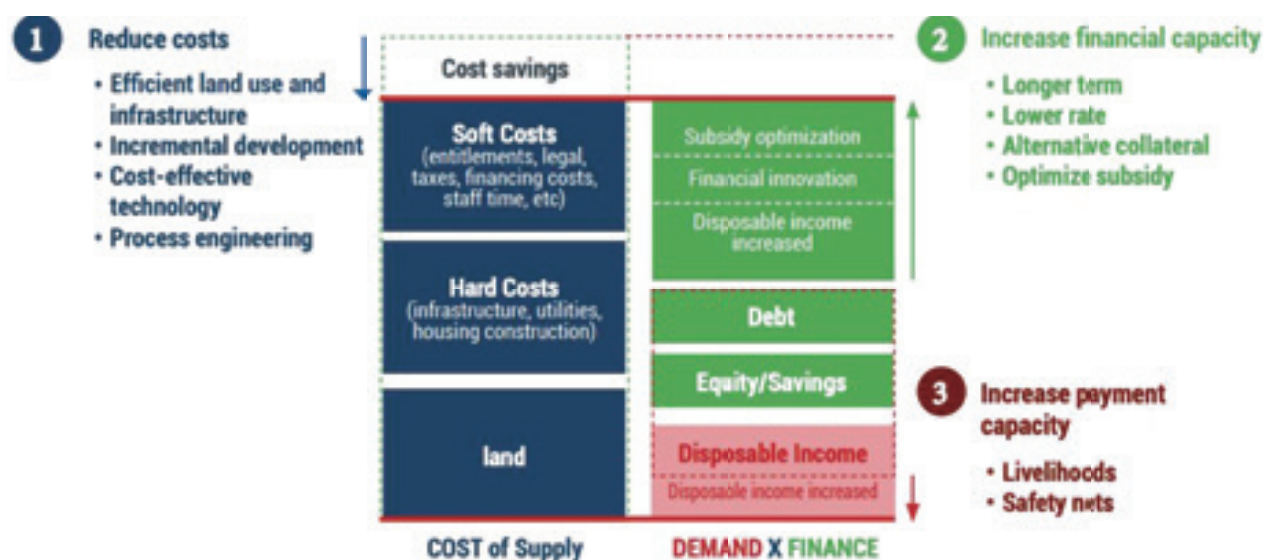
Formulating slum upgrading financing strategies is vital to assess the extent of what is needed, the cost of interventions and to propose appropriate financing and delivery frameworks. Innovative financing strategies will direct funds to ensure that they are allocated strategically to leverage both human and financial capital from national budgets, the private sector and investors, as well as financing partners and communities for impact at scale.

PPPPs and participatory mechanisms have demonstrated their ability to generate significant impact in the delivery of sustainable outcomes in slum upgrading. UN-Habitat plays a key role in enabling partnerships between a multitude of stakeholders for the setup of Community Managed Funds and PPPPs for inclusive finance connecting businesses, communities and national and international stakeholders. In collaboration with governments, UN-Habitat develops and assesses policy to advance community-led interventions for slum upgrading and prevention.

UN-Habitat also identifies private sector innovations and develops market studies identifying the key

1 World Economic Forum, (2022). Rethinking City Revenue and Finance Insight Report. https://www3.weforum.org/docs/WEF_C4IR_GFC_on_Cities_Finance_2022.pdf.

2 World Bank, (2015). City Creditworthiness Initiative: A Partnership to Deliver Municipal Finance: <http://www.worldbank.org/en/topic/urbandevelopment/brief/city-creditworthiness-initiative>.



Source: UN-Habitat, (2022). 2022 Catalogue of Services

Figure 8.1 Core principles of the financing framework

opportunities and entry-points for private sector investment and business cases for slum upgrading and prevention. Following sector analysis across: housing; water, sanitation and hygiene; waste management; energy; transport; health services; education; and economic infrastructure, opportunities for investment partnerships are analysed and recommendations made upon evidence-based market potential. Accordingly, market studies can be used by municipalities, investors and the private sector to recognize potential for low-cost innovative solutions for implementation in informal settlements.

As emerging financing tools, municipal bonds have been discussed among certain development partners, but many uncertainties remain in regard to how to deploy them effectively. In fact, it has been indicated that partners themselves play an important role in de-risking bonds to ensure they are viable for investors and municipalities. Importantly, when utilizing municipal bonds, denominations must be low enough to allow citizens to buy in to strengthen social contracts. The European Investment Bank have stated that loans offer far more flexibility than bonds in the event of non-performance where they

have the potential for renegotiation and restructuring, whilst bonds can be tied up in municipal revenue for years or defaulted with a very minimal possibility for the municipality to negotiate a new debt repayment schedule¹. Commencing with smaller flexible terms of concessionary loans and building up to commercial loans possessing larger, fixed and longer-term costs may serve as a useful model for municipal governments to smoothen cash flow and showcase creditworthiness for additional funding. As such, municipal bonds should only be taken when municipalities have achieved a certain level of development and enhanced their financial management capacity via smaller loans. Bonds can be implemented via several modalities including direct execution by municipalities, execution via trusts and integration with the support of national government. In the first instance, municipalities are responsible for the planning, management and final execution of projects financed by municipal funds, involving the contracting of suppliers, procuring materials and supervising construction as well as ensuring compliance with established budgets and deadlines. Secondly, where delivered through trusts, municipal funds are established as independent trusts with directors responsible for project management and

1 UN-Habitat, (2021). Financing Sustainable Urban Development. https://unhabitat.org/sites/default/files/2021/06/FSUD%20report_web.pdf.

execution. Lastly, with national government support, entities can offer technical, financial and administrative support to municipalities in project implementation.

As nationally established intermediaries that direct resources via loans, grants and blended finance, municipal development funds have also proven their value in promoting fiscal discipline and building capacity for project development, repayment and credit history within local governments. Municipal funds aim to reduce disparities in access to financial resources to support territorial investments that contribute to sustainable urban development, providing funding through a number of programmes and mechanisms that seek to support local and regional development. Via grants, municipal funds can directly distribute resources to subnational governments for those that lack the capacity for debt repayment or to support the development of investment projects that are not bankable. In the form of loans, municipal funds may also allocate resources to fund public investment projects or in cooperation with the private sector, yet access to these funds is typically reserved for subnational entities that possess the sufficient capacity to repay debt, or for bankable projects that can generate positive cash flow. In regard to blended finance, municipal funds can mobilize both public and private resources to finance urban investment projects to help maximize the reach and impact of available resources, diversifying financing sources and decreasing investment risk. Typically merging limited public concessional funds with private sector commercial capital, blended finance offers investment for those projects which are yet to obtain a commercial track record, and function as instruments that can be deployed at both national and local levels depending on specific financing needs, creditworthiness, risk levels and market conditions. Acting as potential catalyst for follow-up investment, they can also kickstart longer-term development and efficient local financial markets.

With a multitude of possible investment sources, organizing investment is crucial for cities and municipalities. To coordinate investment, catalyse and manage relationships, and strengthen the financing capacity of developing cities, the role financial intermediaries play is integral. By streamlining infrastructure delivery, they help to avert issues

of duplication and disorganization, and bridge information gaps between cities and investors. It is common for many countries to house local development funds within national governments in order to coordinate investment from multiple donors and central governments, which are typically offered to municipalities as grants. Municipalities must therefore secure stable revenue bases to enable efficient lending from municipal investment banks, a process which is predominantly driven by large-scale decentralization efforts. The revenue bases should bear the cost of delegated responsibilities in this process via a margin (the operating surplus) which essentially functions as a sustainable repayment source of municipal loans. In the development of municipal investment banks and other pooled credit facilities, solid corporate governance and risk distribution is required. As the establishment of municipal lending will lead to competition from commercial banks over time, confirming these institutions remain financially sustainable in competitive markets is vital in their design, ensuring they reach sufficient size so that they can expand and diversify their own additional profitable business avenues, be sold to private investors or become a part of a private banks lending portfolio.

UN-Habitat Cities Investment Facility

The Cities Investment Facility (CIF) operates as an innovative, multi-stakeholder initiative that is centred around unlocking capital flows to advance the implementation of inclusive and sustainable urbanization projects in low- and middle-income markets, in particular.

Via three pillars: (1) the Cities Investment Portal (CI Portal); (2) the Cities Investment Advisory Platform (CI Advisory Platform); and (3) Cities Investment Vehicles (CI Vehicles), CIF supports project promoters with:

- Marketing their projects to a global audience of construction finance providers, connecting a community of stakeholders at the ideation stage.
- Pre-feasibility advice regarding the upstream project preparation process of ideation, feasibility, design and development as well as financial closure regarding bankability and SDG-impact.

- Pooling diverse and blended sources of funding for these processes to effectively acquire construction financing from other external leaders and investors.

As the first element of CIF, the CI Portal is an online subscription-based platform which hosts and monitors the progress of sustainable urban infrastructure projects among those that have been submitted into CIF as they progress through the stages towards bankable, construction-finance ready status. Critically, the portal unlocks opportunities for investment and urban projects to connect and communicate, and links projects and investors by enabling users to access an interactive database of bankable urban projects and country-level initiatives, along with possible investors with clearly defined areas of interest, types of investment and credentials that align with sustainability and inclusion principles. The CI Portal therefore links together a community of interested parties at project preparation. Subsequently, the CI Advisory Platform works to bridge the gap between sustainable urban infrastructure projects and investor requirements. The implementation partners support upstream projects to enhance their alignment with the SDGs and increase their bankability. Within the platform, project promoters receive advice and guidance on matters such as project structuring, technical and financial due diligence, and SDG impact assessment utilizing UN-Habitat's SDG project assessment tool. As the third and final component, CI Vehicles provides private capital finance and further bankability guidance for projects that have reached the mid-stages of preparation, to drive projects to a financial close with the addition of third parties, long-term lenders and investors. Mid-stage here is defined by the set of preparation assets that have been attained to date, typically including technical and financial feasibility studies, project preparation plans and budgets as well as some early asset development. They are largely those projects which have been prepared and de-risked to mid-stages via the support of the programme's CI Advisory Platform partners but now require considerable additional investment to ensure that the project preparation process reaches a

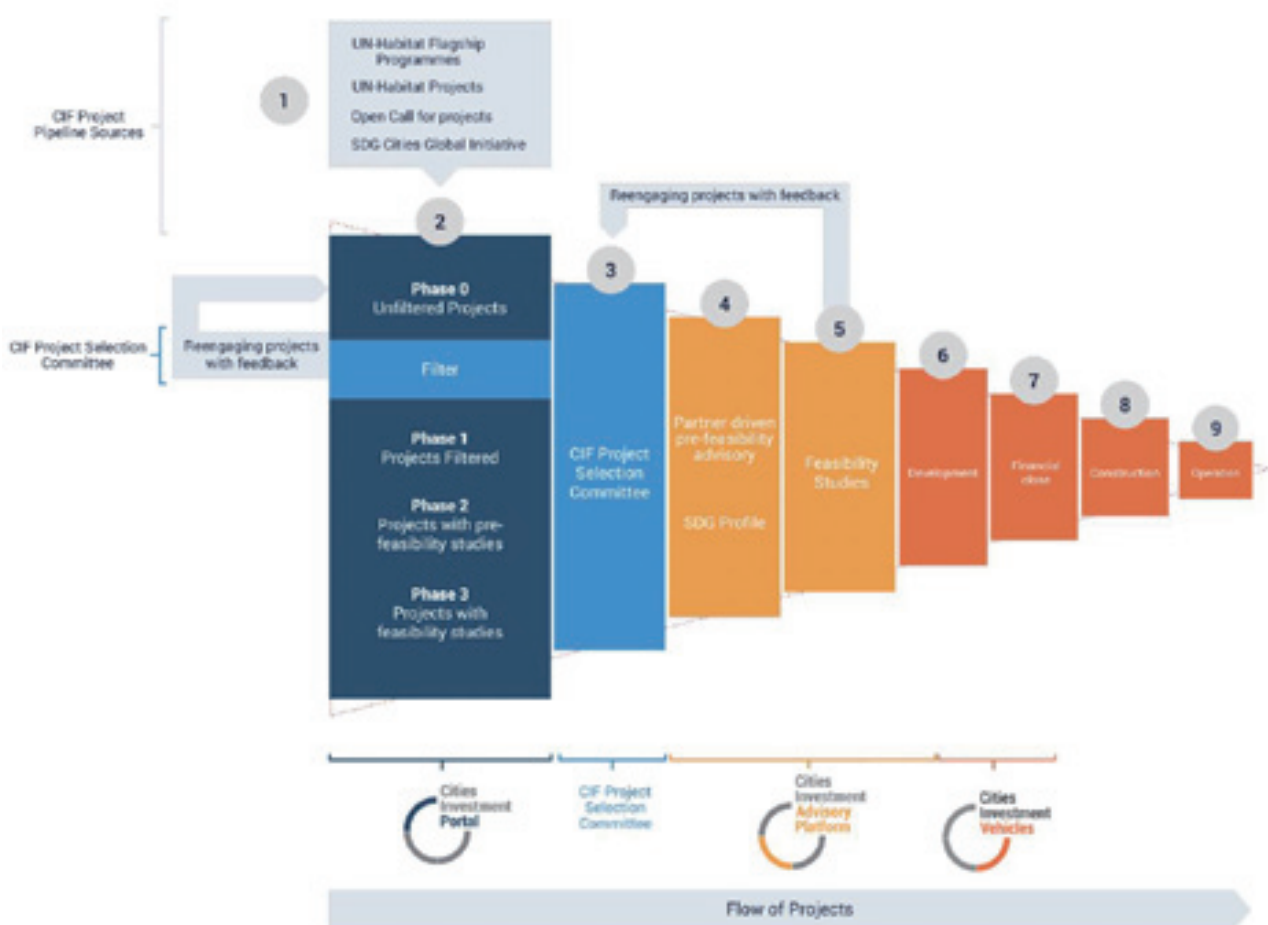
bankable and construction ready status by obtaining outstanding preparation assets such as environmental study approvals, land and permits, design engineering and legal agreements, among others.

CIF makes a marked contribution to achieving the 2030 Agenda by convening and preparing a pipeline of SDG-compliant bankable infrastructure projects which promote sustainable economic growth. In 2022, along with the United Nations Capital Development Fund, CIF secured a EUR 150 million loan facility to increase local financing for sustainable urban development¹. In cooperation with CIF implementing partners, it provides advisory services as well as financial support across the SDGs, and technical and investment realms to: ready projects for investment; connect them to investors; partake in financial products design; and offer projects a platform to showcase their progress. Selected projects actively participate in each of the three CIF pillars which maintain a close relationship and operate within a reinforcing feedback loop supporting and collaborating with each other.

CIF comprises of a number of phases as shown in Figure 8.2:

- **Ideation/Concept/Pre-feasibility:** the initial scoping of the project.
- **Feasibility:** basic, high-level study to determine whether a project makes sense technically and financially.
- **Development:** work to attain the primary agreements, approvals and permits, major studies performed by consultants, land, engineering design, government support to attract construction financing and construction financing providers.
- **Financial Close:** construction financing from the financing syndicate is secured and transferred.
- **Construction:** final engineering, equipment procurement and construction of the project is finalized.
- **Operation:** operation of the project for the duration of its expected lifetime, with revenue collection from government payments and/or user fees.

¹ UN-Habitat, (2022). Annual Report. https://unhabitat.org/sites/default/files/2023/06/unhabitat_annualreport_2022.pdf.



Source: Cities Investment Facility. Structure & Process. <https://citiesinvestmentfacility.org/about-us/cif-structure/>

Figure 8.2 The stages and feedback loops of CIF

UN-Habitat Spatially Informed Capital Investment Planning

There are a myriad of challenges in strategically planning subnational capital investments such as: poor linkages between local plans and budgets for implementation; poor coordination among and between public agencies, levels of government and the private sector; ineffective processes for assessing investment needs and prioritizing and coordinating projects; a lack of transparency and clarity around the budgeting process; and a number of financial system shortcomings that make budgeting difficult.

Many of these problems are exacerbated by the absence of spatial information in investment planning. However, integrating a spatial framework can address these problems by enhancing the relationship between

strategic goals and budgeting, improving needs assessment, and supporting the prioritization of capital projects in a transparent and less subjective process. Evidence-based project prioritization can also facilitate better communication with higher levels of government and investors, addressing financial system shortcomings in subnational capital budgets.

Through linking multicriteria assessments for prioritizing projects, scheduled implementation and available capital, UN-Habitat provides a Capital Investment Planning (CIP) process to ensure the efficient implementation of spatial plans and ultimately achieve sustainable urban development, see Figure 8.3. CIP strategically phases and prioritizes the execution of projects to efficiently distribute the allocation of funds as well as facilitate resource mobilization. It

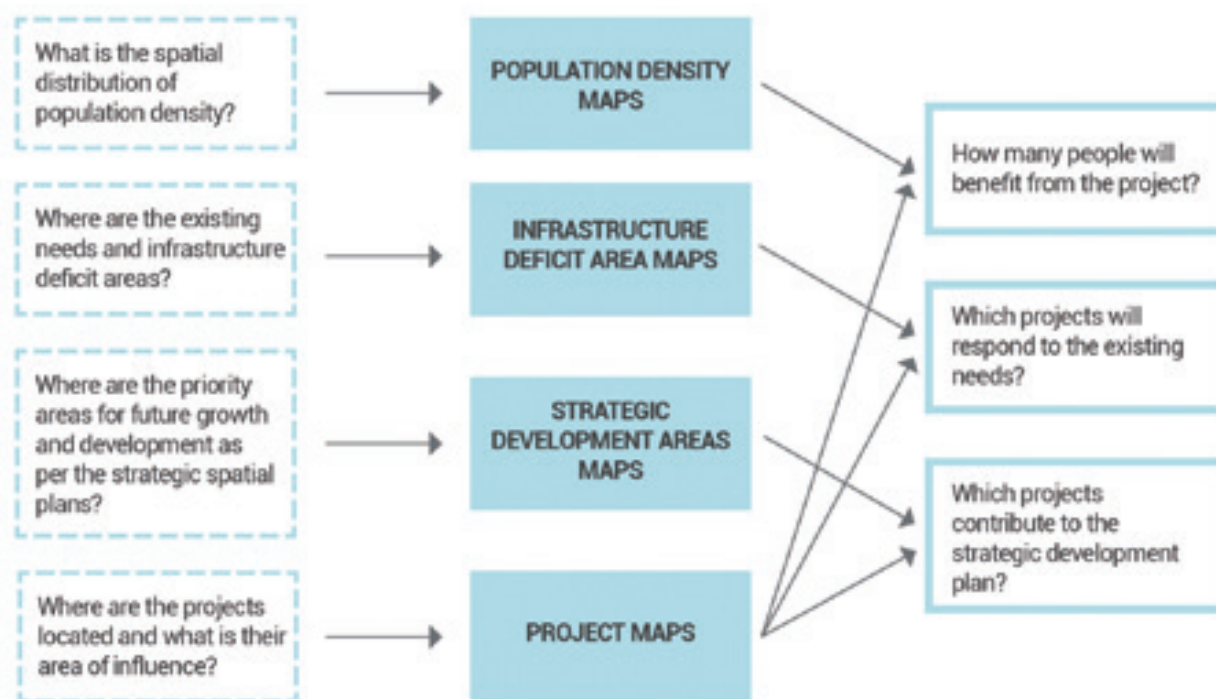
provides the nexus where spatial plans, capital projects and finance are integrated to provide a clear roadmap for the implementation of the development strategy and incorporates three broad categories for capital investment:

- Maintenance and reconstruction of existing infrastructure.
- Backlogs in service provision.
- Capacity creation for future urban growth (within the existing network – urban regeneration, and where warranted, urban expansion).

Spatial criteria are incorporated in a multi-criteria prioritization system to indicate the most important projects to fund. It provides a clear indication of what

interventions are required where and when to achieve a planned outcome. The UN-Habitat's Spatially Informed CIP process ensures a direct link with the spatial components developed in the diagnostic and planning phases, and therefore provides an evidence base and strategic logic for investment decisions.

Options for financing projects are incorporated into the plan to create an overall funding envelope. It incorporates public funding (government and city budgets), loans and grant funding. Prioritized projects (and project areas) are then allocated funding within this overall funding envelope to produce an area-based development programme that can be broken down into different strategic development areas of the city. Interventions and funding allocations are reflected spatially and aligned with the spatial plan and strategy.



Source: Diagram developed by UN-Habitat

Figure 8.3 The project prioritization process

Future directions and recommendations for financing sustainable urban development

Emerging trends in urban financing

In light of the rapid changes and emerging challenges that cities across the world are now facing, urban financing is subject to a number of emerging trends which are reshaping the ways in which urban areas are funding their growth and transformation via innovative and sustainable pathways. The rise of green and climate finance is generating traction in the promotion of environmentally oriented cities, whilst a growing recognition as to the importance of PPPs has indicated the need to strengthen cooperation between governments and private sector entities to better tackle urban challenges. Impact investing also continues to gather momentum, attracting investors who seek measurable positive impacts alongside financial returns whilst emerging sources of finance including market-based solutions, blended finance, philanthropy and policy tools are redirecting investment onto a new trajectory. Furthermore, with the rise of technology-driven solutions such as smart city innovations and data analytics, digitalization continues to play an increasingly integral role in financing, facilitating more informed decision-making and efficient resource allocation within urban development projects.

Whilst there is a growing urgency to mainstream urban climate action strategies, national policies and market mechanisms are currently minimizing climate finance flows into municipalities. Critically, just 10 percent of current investments in climate change reach the local level, preventing the ability for urban areas to become climate resilient¹. Where cities are on the frontline for climate action, deploying green finance at scale now constitutes a major opportunity to invest

in sustainable, green cities with investors seeking opportunities to align to sustainability goals. Alongside the integration of environment, social and governance (ESG) criteria into investment decisions, there is a growing trend in environmentally conscious and socially responsible approaches to urban financing. In correlation, the data indicates that where investment is adequately structured, private investors are now ready to invest in infrastructure to achieve the SDGs². As cities globally grapple with the challenges of rapid urbanization and environmental crises, green finance and impact investing presents the opportunity to shift to more environmentally sound urban development financing strategies in which private investment acquired from equity and debt can reduce the investment gap, stimulate private sector innovation in urban infrastructure and speed up the implementation of catalytic municipal projects. The rise of green bonds is now allowing cities to attract investment specifically for environmentally oriented projects such as renewable energy initiatives, green infrastructure and nature-based solutions.

Traditional funding remains an integral stepping stone to unlock external finance yet additional efforts towards internal funding, whilst attracting private finance, is likely to generate far greater value for money for cities. As urban development is faced with multifaceted and intricate challenges worldwide, there is a growing emphasis on the need to leverage innovation and creativity in new financing mechanisms, particularly in the global south. As cities recover from the COVID-19 pandemic, it is more timely than ever to trial new solutions in developing countries and those sectors impinged by financing barriers. Whilst it is important to note that PPPs do not typically generate revenue for cities, they are giving rise to new channels of direct investment, enabling the effective delivery of high-quality projects in line with national strategic visions in many municipalities faced with budget constraints. Private investments provided via private equity funds, in particular, have gained a prominent presence in emerging markets and donations from philanthropy are also playing an increasingly

1 UN-Habitat, (2023). Report of the Executive Director on the special theme of the second session of the United Nations Habitat Assembly.

2 A GI Hub Global Infrastructure Investor survey conducted in 2019 revealed that 97% of investors now believe ESG factors are important considerations in infrastructure investment decisions, an increase of 11% from 86% in 2016.

prominent role in addressing urbanization, in which 5 percent of overseas development assistance now stems from foundations¹. Where a large proportion of this philanthropic funding contributes towards capacity building through training with municipal level officials, large contributions help cities to address public issues that have been underinvested. The likes of the Rockefeller Foundation via the 100 Resilient Cities Catalyst, the Bill and Melinda Gates Foundation, Bloomberg Philanthropies, the Thomas Reuters Foundation and the Ford Foundation, among others, all continue to serve as important donors for sustainable urban development globally.

As the digital revolution is transforming the financial management of cities, digital finance and fintech solutions are developing at pace. Tools such as mobile payment systems and blockchain technology are becoming more commonplace, helping local governments to streamline revenue collection, reduce fraud and corruption, and enhance fiscal transparency in which real-time financial data and analytics can support planners and policymakers to make more informed decisions on budget and resource allocations. Where there may be risks including the misappropriation of funds and embezzlement, the emergence of blockchain technology, in particular, is enabling tamper-proof records of financial transactions enhancing trust in municipal systems where risks of corruption are present. In addition, fintech innovations are also making it easier for cities to access and manage funds, improving the efficiency of financial processes. By digitally enabling urban infrastructure through technology, cities can work to enhance the economic benefits of infrastructure delivery, reduce the financing gap and life-cycle costs, whilst supporting and integrating ESG principles.

A way forward for financing investment in sustainable urban development

Rethinking financing for sustainable urban development has become an imperative in the face of the profound challenges and opportunities that cities around the world are currently confronting.

Urbanization is accelerating at an unprecedented pace with more than half of the global population now residing in cities. This rapid growth places immense pressure on urban infrastructure, services and the environment, requiring innovative financial solutions to address the increasing demands of urban living. Climate change poses a significant threat to cities, making it essential to prioritize sustainable development. Urban development encompasses efforts to reduce greenhouse gas emissions, increase resilience to climate impacts and promote environmentally friendly practices. Traditional funding and financing models often fall short in providing the necessary resources to fund these critical initiatives, necessitating a reevaluation of how cities raise and allocate funds.

Inclusivity is another critical factor driving the need for the urban world to rethink financing investment. Many cities are grappling with issues of inequality and social exclusion, and financing mechanisms must be designed to ensure that development benefits reach all residents such as investments for affordable housing, education, healthcare and social services which can help bridge the socioeconomic gaps within cities. The COVID-19 pandemic has exposed vulnerabilities in urban systems and the need for resilient and adaptable financing models. It has also highlighted the importance of funding healthcare infrastructure, emergency response and public health measures, and has underscored the value of ensuring the availability of financial reserves and flexible financing mechanisms to respond to acute shocks. In the face of these complex challenges, cities must look beyond traditional funding sources and explore innovative options. This may include tapping into the private sector through PPPs, issuing green bonds to fund sustainable projects and leveraging digital technologies to streamline financial processes. It is essential to adopt a holistic and forward-thinking approach that aligns financing strategies with long-term urban development goals fostering resilient, sustainable and inclusive cities for the future.

This chapter has made clear that pragmatic, collective

¹ UN-Habitat, (2022). Foundations and Philanthropy Platform. <https://www.urbanagendaplatform.org/resources/foundations-and-philanthropy-platform>.

and coordinated action is required to transform long-term financing strategies for sustainable urban development. Cities are now presented with an invaluable opportunity to close the gap on funding and financing, and “build back better” using post-COVID-19 pandemic momentum to redefine financing mechanisms and urban development needs via people centred approaches. With a significant focus on ESG among citizens and financiers alike, cities can adopt the new emerging finance mechanisms to drive green futures. However, where cities are uniquely positioned and operating across a wide spectrum of enabling environments, it is clear that flexible and tailored solutions will be required to meet the unique needs of individual municipalities where each must devise their own contextualized solution. Where we see that those cities in developing and emerging economies typically have significantly reduced institutional capacity, lower levels of autonomy and weaker governance foundations which disproportionately impacts their ability to acquire finance, a focus on enhancing creditworthiness and investor confidence is essential for them to move sustainable urbanization forward. In instances where municipalities have reduced capacity to borrow due to budget constraints or legal barriers, it is important to recognize that policy and institutional foundations can still help to guide private investment at the local level, operating as soft powers. By recognizing national development policies as the starting points from which to open up new municipal financing avenues, coordinated and coherent policy mechanisms between national and sub-national levels are integral to unlock new financing channels, specifically within emerging economies in the global south. However, it must be understood that unlocking these mechanisms will not be possible unless the current funding issues are addressed. Where municipalities are faced with barriers to holistic policy implementation and institutional reform at the national level, eliminating current regulations that impair the possibility for local governments to act must also be addressed.

Instilling sustainable and secure financial management strategies is also paramount, and it is important that municipalities seek to extract the maximum value from their own spending and assets, ensuring the efficient use of resources and funds in line with prepared budgets. By adhering to long-term strategies

to inform financial decisions and by employing discipline in expenditure, cities can operate with greater ability and enhance their resilience in the event of unforeseen shocks. It is critical that they actively work to identify new revenue sources and funding methods to maintain and strengthen their own long-term financial sustainability, promoting diverse and creative approaches that can complement existing conventional financing mechanisms. As cities are urged to innovate to more effectively secure investment, the diversification of internal financing sources is essential where strategies such as OSR, land-based financing and intergovernmental transfers all serve as valuable mechanisms. It is, however, highly pertinent for cities to also tap the support of the private sector and international financing bodies, leveraging PPPs, market-based instruments, blended finance, municipal loans and policy-based tools among other emerging instruments. Via both debt and equity, private investment can help close the gap of financing, stimulating innovation in urban development, accelerating project implementation and reducing funding costs. In addition, cities can leverage IFIs and other philanthropic donors as lenders in urban development, boosting credibility and confidence among investors, thus helping to gain traction on further project investment. As relations between urban administrators and other governmental and non-governmental entities are evolving, cities are afforded the possibility to strengthen lateral and horizontal collaboration, and coordination with both public, private and philanthropic organizations via the establishment of high-quality partnerships, and thus open up new channels of external revenue generation and resource acquisition. As iterated previously, it is evident that to unlock these avenues, necessary reform within policy and institutions will be required to incubate the regulatory ecosystems that allow sound financial management practices to be developed, and consequently municipal creditworthiness and project bankability.

In parallel with the increasing traction on green financing, concentrating investment into achieving green urban futures is now critical if the world is to minimize the impact of climate change. To achieve climate ambitions they must be integrated as priorities into urban financial governance and

investment decisions. Urban investment must prevent the lock-in of high-carbon infrastructure, with new infrastructure delivery contributing to climate proof cities, incorporating climate principles into decision-making processes as part of multi-year municipal capital investment plans. Annual city budgets will allow for the tracking and improvement of urban climate performance, using budgeting to embed climate targets and shape budgetary decisions. Respectively, this also necessitates the importance of building the capacity of urban actors to effectively develop climate initiatives, ensuring that sufficient resources are available to design and deliver high-quality projects, investing in financial management training for staff, and cultivating partnerships and networks with multiple actors and institutions to increase access to the knowledge and skills needed to ensure that projects are financially sound. Accelerating green finance also reiterates the need for municipalities to improve and diversify their revenue collection methods. The development of efficient and reliable systems will both increase access to capital and drastically enhance the creditworthiness of cities, decreasing costs of borrowing. Measures such as the placement of surcharges on high-emitting goods, services and transport, fossil-fuel based energy use, local climate tax funds and carbon market establishment within urban administrative jurisdictions may all here operate as effective mechanisms. It is important to note that municipalities must weigh up the most benefits in consideration of their unique socioeconomic and governance contexts¹. The mobilization of private sector investments will be integral to filling funding gaps for climate-oriented projects in which cities may leverage PPPs, tax increment financing, development charges and land value capture, as well as sustainability-linked loans, green bonds and carbon finance to capture interest. However, markets for green urban investment projects must be put in place in combination with good returns on investment and limited risk to ensure success.

By connecting financing with planning, economic activity and land-value capture, a positive investment cycle of growth can be unlocked, driving sustainable urbanization. Capitalizing on planned fiscal stimulus,

effective financing and robust institutions will enable cities to build wealth, boost employment opportunities and stimulate the innovations needed to tackle core challenges that lie in the way of achieving sustainable development. In turn, cities can unleash a broader base of economic activity and foster increased participation in urban economies, driving prosperity from the bottom-up. It must, however, be recognized that subnational governments alone cannot achieve these aspirations where development actors and financiers from the private sector, IFIs, multilateral development banks and philanthropic foundations are encouraged to work in partnership to unlock urban financing opportunities for municipalities in all regions. Equally, city leadership groups such as United Cities and Local Governments, the Global Covenant of Mayors and the C40 Cities Climate Leadership Group can be tapped to help cities, mayors and other urban actors generate financing facilities.

As global economic powerhouses and hubs of excellence and innovation, cities will dictate the local implementation of global goals, ramping up the importance of unlocking new financial channels for cities and promoting more informed urban investment decisions. Informed investments will lead to improved infrastructure and service delivery, and more prosperous economic opportunities enhancing access to opportunities and quality of life for urban citizens. As cities grapple with the challenges of population growth, climate change and resource constraints, well-planned investments become imperative. By leveraging data, comprehensive planning and stakeholder engagement, cities can ensure that their investments align with their long-term goals, foster inclusive development and contribute to global efforts on sustainable development. Making informed decisions is not just about financial prudence, but it is also about shaping the cities of tomorrow in a way that benefits current and future generations. Ultimately, where cities must now focus on financing projects that accelerate a transformative recovery in line with the 2030 Agenda and the New Urban Agenda, they must in turn be reflected as core players within international financial architecture.

¹ C40 Cities, (2019). Six ways for cities to drive climate investment. https://www.c40knowledgehub.org/s/article/Six-effective-ways-for-cities-to-invest-in-climate-action?language=en_US.

Chapter 9

The best practices of the Global Award for Sustainable Development in Cities (Shanghai Award) 2023 winning cities



Introduction¹

This chapter is a summarization of the best practices of the five winning cities of the Global Award for Sustainable Development in Cities (Shanghai Award) 2023. The establishment of the Shanghai Award was officially announced by the Executive Director of UN-Habitat at the first session of the 2022 Executive Board of UN-Habitat on 30 March 2022. This award is a global initiative led by UN-Habitat and Shanghai Municipality, aiming to accelerate the implementation of the 2030 Agenda and New Urban Agenda. It focuses on advancing SDG 11, promoting SDG localization, echoing on the Global Development Initiative (GDI), and incentivizing cities to find systematic solutions for sustainable urban development. In addition, this award will help build the platform for advancing UN-Habitat's strategic plan and flagship programmes and the Global Urban Monitoring Framework.

The theme of the first cycle of the award is "Building a sustainable urban future for all", to recognize cities that have made significant progress in the four areas of economic vitality and urban prosperity, green urban development, urban safety and resilience, and capacity building for sustainable urban development. A total of 54 cities in 16 countries on 5 continents have submitted applications. In accordance with the evaluation criteria as well as considering their representativeness, growth potentials and demonstration effects, the international jury has selected five winning cities. They have showcased a series of integrated urban sustainable solutions and effective practice involving broad multi-stakeholder participation.

Brisbane, Australia: The city represents a people-centered, innovative city by creatively combining data, technology, urban planning and robust financial and economic models with a social system.

Salvador, Brazil: The city proposes a coordinated, goal-oriented approach, emphasizing the protection of women's rights and cultural heritage, and forms a number of replicable urban development experiences.

Kampala, Uganda: The city achieves significant progress through actions based on innovative programs in the areas of road safety and connectivity, urban air quality improvement, green financing, and renewable energy utilization.

Fuzhou, China: The city focuses on the sustainable development strategy of a green and digital economy, innovatively implements a urban water system management project, and builds itself to be a green, low-carbon and eco-friendly garden.

George Town, Penang, Malaysia: The city implements a nature-based climate adaptation plan, an efficient financing mechanism, innovative technical tools and intelligent solutions to achieve sustainable development via a holistic approach.

¹ This chapter was compiled by Wang Xin, Chen Xun, Qiu Mengying, Huang Xi and Jiang Xintong from Tongji University using the Shanghai Award application documents. Location maps in this chapter were drawn by the authors based on Google Maps screenshots.

Brisbane, Australia

Abstract

As the fastest growing city in the country, Brisbane has developed an ambitious, but at the same time realistic vision, into a long-term development plan, see Figure 9.1. The city creatively integrates data, technology, urban planning, a sound financial economic model,

with social and institutional innovations. The strategy to re-densify the inner city deprived of more space of growth with affordable housing solutions, new forms of connectivity and sustainable transport are very commendable solutions. Brisbane's unique coastline characteristics have led to a significant amount of planning exploration and action in the city. These activities along the coastline not only increase public awareness of climate change issues, but also create strong public support for the city's sustainable development.



Source: Materials submitted by Brisbane for the Shanghai Award 2023

Figure 9.1 Brisbane city scape

Development Context

1. Context

Brisbane is Australia's fastest growing capital city with a rapidly growing population. It enjoys a subtropical climate, with 38.9% natural habitat coverage, and local natural assets such as the 114-kilometre-long Brisbane River and more than 2,100 parks and natural areas are a drawcard for residents and visitors alike, see Figure 9.2. With a median age of 35, the community is multicultural. Brisbane's Knowledge Corridor, located in the inner city, is where the city's knowledge-



Source: Drawn by the authors based on Google Map

Figure 9.2 Brisbane's location

based activities are situated. Brisbane owns a good innovation environment and ranks in the top 10% of 500 cities worldwide. In July 2021 Brisbane was confirmed as the Host City for the 2032 Olympic and Paralympic Games, see table 9.1.

2. Main challenges encountered

With much of Brisbane's green space already fully developed, accommodating population growth while

also keeping housing affordable means increasing density must be accommodated by renewing existing inner cities and suburbs. Since the city is built on a flood plain, good planning and construction are needed to make the city more resilient. As cities continue to grow, it is also critical to maintain and improve quality of life and provide diversified experiences for residents and visitors. The Olympics will bring new opportunities to Brisbane, with the focus shifting from the Olympic Park to the integration of the Games into the urban space.

Table 9.1 Basic city data for Brisbane

No.	Index	Data	Notes
1	Population (2022)	1,284,698	
2	Municipal Administrative Area Size	1342.7 km ²	
3	Built-up Area Size of the city	—	
4	GDP Per Capita (2022)	\$53052	

Source: Materials submitted by Brisbane for the Shanghai Award 2023

Sustainable Development Strategy

1. Overall strategy

The Brisbane City Plan 2014 (City Plan) is the Council's planning scheme, which guides how land in Brisbane is used and developed, to help grow the city while maintaining the character of suburbs and creating a city of neighbourhoods. It reflects key policies such as Brisbane's Sustainable Growth Strategy and Brisbane. Clean, Green, Sustainable 2017—2031 and helps plan for infrastructure to support growth and protect the way of life.

The Strategic Framework component of the City Plan sets the policy direction for the planning scheme and aims to ensure the city can accommodate a wide range of development types, while maintaining and enhancing Brisbane's lifestyle, economic growth and environmental protection and improvement.

2. Action strategy

The Queensland Government's Shaping SEQ – The

South East Queensland Regional Plan sets an urban growth boundary for the region and dwelling targets that each local government must achieve to meet the projected population growth rate.

As Brisbane has limited greenfield development opportunities, most new development will need to occur in already established areas. Brisbane's Sustainable Growth Strategy sets out ways to manage the city's growing population while also protecting and enhancing a desirable lifestyle locally. Brisbane's Inner City Strategy represents the inner city sustainable growth strategy, which sets the planning direction that will shape the future of Brisbane's inner city and guide the Council's program of inner city precinct planning and infrastructure delivery in the lead up to the Brisbane 2032 Olympic and Paralympic Games and beyond.

Brisbane: Our Productive City positions the city to attract more world-class initiatives, smart business and technologies, while sustaining industrial land supply and enabling the city's industrial precincts to advance, renew and evolve.

Feature Activities

1. Activity 1: Deliver the turn-up-and-go Brisbane Metro

Brisbane City Council is delivering the turn-up-and-go Brisbane Metro, a new era of connected transport, see Figure 9.3. The Brisbane Metro will link the city to the suburbs and enhance connectivity with the people and places. The all new metro will operate along dedicated busways from Eight Mile Plains to Roma Street and Royal Brisbane and Women's Hospital to University of Queensland with turn-up-and-go services, operating 24 hours on weekends and no timetables needed.



Source: <https://www.brisbane.qld.gov.au/traffic-and-transport/public-transport/Brisbane-met>

Figure 9.3 The Turn-up-and-go Brisbane Metro

This city-shaping project is fully funded in partnership with the Australian Government and will transformour the city's public transport network. The fully electric, high-capacity metros will provide more travel options with easy links to bus and train services, building new and improved infrastructure and using the Optimal technologies to suit our river city.

Brisbane Metro vehicle:

- Turn up and go rapid transit system connecting key destinations
- Australia's first flash-charged battery electric

"trackless tram"

- Major infrastructure works underway, services commence in late 2024
- Stage 1 fleet of 60 vehicles, with huge opportunities for further expansion

2. Activity 2: Kangaroo Point Green Bridge

Brisbane City Council is building a new green bridge to make it easier for visitors to transit around the city. The Kangaroo Point Green Bridge will connect Kangaroo Point and the Central Business District (CBD), making walking or cycling between Kangaroo Point, the eastern suburbs and the CBD more convenient, see Figure 9.4.



Source: Materials submitted by Brisbane for the Shanghai Award 2023

Figure 9.4 Kangaroo Point Green Bridge

More than just a bridge project, the Kangaroo Point Green Bridge will become a must-visit destination for residents and visitors to the city, with the final design including several unique riverside dining venues.

3. Activity 3: Host the Olympic Games

The International Olympic Committee (IOC) has elected Brisbane as the host city for the 2032 Olympic and Paralympic Games, see Figure 9.5.

The Brisbane 2032 Olympic and Paralympic Games proposal involves collaboration at all levels of government, and as a result of this collaboration,



Source: Materials submitted by Brisbane for the Shanghai Award 2023

Figure 9.5 Brisbane elected as the host city for the 2032 Olympic and Paralympic Games

the Council and its Brisbane 2032 partners are now committed to delivering the world's largest sporting event, which will provide local residents with and bring huge economic benefits to enterprises.

The Games will bring \$8.1 billion to Queensland, including \$4.6 billion in economic growth from tourism and trade, and \$3.5 billion in social improvements such as health, volunteering and community benefits.

Main Achievements

1. Impact

(1) City influence

While Brisbane's economic vitality and urban prosperity are partly shaped by the policies of the Queensland and Australian governments, the Council plans for the future while creating jobs and ensuring the city has the services and infrastructure to meet the needs of future generations. Brisbane's economic value is expected to reach A\$239 billion by 2041, providing excellent investment opportunities; the Brisbane Economic Development Authority (BEDA) drives investment demand for the city in domestic and international markets, showcases the city and through Comprehensive market access and expansion strategies provide support to potential investors and businesses; at the same time, Brisbane's international

business is strengthened, the space for business operations and development is expanded, and the local shopping district is more prosperous.

(2) Influence of innovative actions

Brisbane's innovative initiatives are more than just projects, they represent a leap towards "a sustainable, inclusive and prosperous urban future for all".

The Brisbane Metro is a ground-breaking project in public transport that will usher in a new era of connected transportation. The Kangaroo Point Green Bridge will provide the city with a world-class landmark, connecting the city center to the popular inner-city peninsula. The Brisbane 2032 Olympic and Paralympic Games is an important opportunity to become a model for sustainable Olympics and demonstrate internationally the positive and lasting benefits the Games can bring to the city, see Figure 9.6.

In summary, these actions: enhance the economic vitality of the city by increasing employment, promoting industry development, optimizing the industrial structure, and improving urban connectivity. The use of clean renewable energy, reduction of greenhouse gas



Source: Materials submitted by Brisbane for the Shanghai Award 2023

Figure 9.6 Celebrations heralding Brisbane as the new home of the Olympic and Paralympic Games

emissions, strengthening of slow traffic construction and focus on increasing the resilience of natural ecological landscapes among other methods have promoted the development of a green city; using extensive infrastructural upgrading and quality assurance from the detail level of facilities, whereby a safer, more resilient and inclusive environment has been created.

2. Sustainability

(1) The Brisbane Sustainable Growth Strategy: Provides key priorities and actions that will help balance the urgent need for housing supply while protecting the natural environment. Key to the strategy is identifying areas suitable for development; areas which are rich in basic transportation facilities, public services, green spaces and employment opportunities, thus achieving sustainable urban development.

(2) The Inner-City Strategy: captures the shared vision and goals of the Inner City 5 km to guide us towards sustainability as we look towards the 2032 Brisbane Olympic and Paralympic Games and beyond. Brisbane's growing inner city is one of the keys to a more sustainable and vibrant future. Regional planning for sustainable inner-city growth will increase housing and employment opportunities in areas rich in infrastructure and amenities.

(3) "Brisbane: Our Productive City": is a strategy to improve and adapt the city's industrial areas so that they develop into knowledge-intensive enterprises based on human intelligence rather than natural resources or labor. The strategy provides traditional enterprises with a roadmap for developing sustainable, world-class smart businesses and technologies.

(4) "Brisbane. Clean, Green, Sustainable 2017—2031" highlights the city's key achievements in sustainability and outlines future actions and commitments to drive a cleaner, greener and more sustainable city. Piloting an action-oriented Voluntary Local Review (VLR) using the Global Urban Monitoring Framework (UMF) in partnership with UN-Habitat will bring together some of these actions and recommendations to unlock greater opportunities.

(5) The Brisbane City Plan 2014 is the City Council's planning package that guides how land in Brisbane is used and developed to help grow our city while maintaining the character of the suburbs and creating a city of neighbourhoods. Achieving sustainable urban development is an ongoing priority and the Council works with governments, the development industry and communities to ensure this is achieved in a way that contributes to the implementation of the Sustainable Development Goals and new urban development, see Figure 9.7.

Learning Aspects

1. Innovation

(1) Inner city strategy: inner city strategy adopted Inner Spark engages in ideas of citizen aspirations reflected in the plan. The council used innovative engagement techniques to communicate the different voices in the community, and the 1,960 ideas and nearly 30,000 community votes received helped shape the four pillars and future direction of the Inner City Strategy and will drive Brisbane's development into a liveable and sustainable city.

(2) Green space expansion: although the city continues to grow significantly and continuously, the city government still prioritizes expanding green space and maintaining environmental conditions. Expected to be implemented in 2031, the 40% natural habitat coverage target is Brisbane's unique approach to protecting biodiversity and building urban resilience.

(3) Carbon neutral: The council's operations have become carbon neutral and remain 100% carbon neutral, making it the largest certified carbon neutral organization in Australia. This commitment embodies a proactive approach to mitigating climate change and sets an example for other cities.

(4) Barrier-free transportation: The council's policy decisions prioritize mobility and connectivity, as outlined in the Brisbane Strategic Direction Transport Plan. The fully air-conditioned, wheelchair-accessible bus improves accessibility for all residents, including those with disabilities. This inclusive mode of transportation



Source: Materials submitted by Brisbane for the Shanghai Award 2023
Figure 9.7 (three as a set) Brisbane city scape

promotes equal commuting opportunities and improves the overall liveability of the city.

(5) River infrastructure and recreation. Enhancing access to the Brisbane River and developing multi-purpose river infrastructure through the River Access Plan transforms the riverfront into a leisure, tourism and activity hub. This innovative approach improves the city's lifestyle and makes it more attractive to residents and visitors.

(6) Water intelligence and flood intelligence strategies. The council promotes water-sensitive design and construction by providing educational materials, incentives and working with industry bodies. The Flood Smart Futures strategy incorporates best practice in flood risk management, including backflow equipment, updated flood information tools and voluntary buy-back schemes. These strategies help build a resilient and sustainable city.

2. Adaptability

(1) Flood Emergency Management. The council's Local Disaster Management Plan provides an outline for prevention, preparation, response and recovery arrangements in our community and in partnership with other levels of government. The primary focus is to effectively manage and mitigate the effects of disasters on the community wherever possible or practical, while preparing to respond when disasters do occur. The council provides free severe weather alerts for Brisbane's residents and visitors and the alert service provides advanced warning for severe weather or other public safety events and helps prepare and protect people and property.

(2) Carbon Management and Sustainability. The Carbon Neutral Council initiative demonstrates the importance of setting ambitious goals and reengineering various aspects of city operations to achieve carbon neutrality. Given the global nature of climate challenges, every city authority should prioritise carbon management and sustainability. This approach involves establishing effective partnerships, implementing new programs,

adopting carbon accounting metrics, sharing stories and learnings, and celebrating success. Replicating these practices is particularly relevant to SDG 13 on climate action and SDG 11 on sustainable cities and communities.

(3) Fact-based decision-making. Brisbane's experience highlights the significance of making informed decisions based on accurate data. Cities facing environmental degradation or challenges should prioritise gathering reliable information to understand the root causes and develop effective solutions. This approach was demonstrated in initiatives such as the Floodwise Homes Package, where accurate data was essential to support flood-affected homeowners. Fact-based decision making contributes to evidence-based policymaking, aligning with SDG 9 on industry, innovation, and infrastructure.

(4) Community Engagement. Brisbane's commitment to community engagement provides a replicable model for other cities. By involving residents in decision-making processes, cities can ensure broader community appreciation and understanding of key topics, see Figure 9.8. Establishing focused working groups, feedback sessions, online platforms, and specialized events can enable meaningful community participation and help address concerns and priorities. This approach aligns with SDG 16 on peace, justice, and strong institutions.



Source: Materials submitted by Brisbane for the Shanghai Award 2023

Figure 9.8 Public engagement in policymaking

Salvador, Brazil

Abstract

The city of Salvador has adopted a systematic development process and carried out specific and diversified planning refinements in accordance with SDG 11, see Figure 9.9. In order to ensure that the implementation of the plan is closer to the needs of the people and the actual situation, the city has widely listened to public opinions and suggestion. In addition, in response to Salvador's unique terrain and coastline,

the city has formulated a series of targeted climate change response measures, demonstrating an urban development model in the context of climate change and providing valuable demonstration and guidance for other cities. refer to. This comprehensive and forward-looking planning strategy makes the city of Salvador an important example in sustainable urban development. For example, Solar Salvador uses public policies to stimulate the use of photovoltaic solar energy and seeks to generate environmental and social impacts, including stimulating the local economy, creating new job opportunities, reducing energy costs and reducing energy consumption, etc., linking sustainable development with innovation.



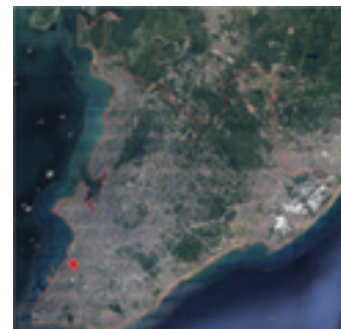
Source: Materials submitted by Salvador for the Shanghai Award 2023

Figure 9.9 Salvador city scape

Development Context

1. Context

The city of Salvador is the capital of the state of Bahia, the first capital of Brazil and the fifth most populous city, see Figure 9.10. More than 80% of the population is black. Salvador's population has grown by nearly 184% in 48 years, whereby in 2010, Salvador's Gini index was 0.63, in which 11.4% of the population was poor, and 4.0% of the population was in extreme poverty.



Source: Drawn by the authors based on Google Map

Figure 9.10 Salvador's location

As of December 2021, the City Hall allocated R\$ 1.34 billion to support the population, especially in health (39.8%). Salvador also promotes the inclusion of sustainability criteria and considers integrating climate

risk adaptation and mitigation into its public policies, especially strategic economic development sectors, see table 9.2.

Table 9.2 Basic city data for Salvador

No.	Index	Data	Notes
1	Urban permanent population (2021)	2.900319 people	
2	City administrative area (2022)	693.442 km ²	
3	Urban built-up area (2016)	303.5 km ²	
4	GDP per capita (2019)	\$4636	

Source: Materials submitted by Salvador for the Shanghai Award 2023

2. Main challenges encountered

Salvador is located in a geological fault, and approximately 45.5% of the population lives in dangerous areas. As the city was built through accelerated urbanization, social inequalities continued to grow, manifesting themselves in informal settlements and poor neighborhoods (comprised mainly of black citizens). With the onset of the COVID-19 pandemic, many citizens lost income and careers, reflecting Salvador's strong need for a green, equitable and sustainable recovery.

Sustainable Development Strategy

1. Overall strategy

Master Urban Development Plan (PDDU)

Salvador's Urban Development Master Plan (PDDU), published in 2016, establishes the right to a sustainable city as one of its principles. Among its objectives is the promotion of sustainable development in all its aspects: the use of raw materials and clean technologies, the generation of renewable energy sources, water reuse in infrastructural contexts, and waste management.

2. Action strategy

(1) Resilience Strategy (100RC)

Salvador launched its Resilience Strategy in 2019,

which was part of the 100 Resilient Cities (100RC) Program, captained by the Rockefeller Foundation. The Strategy for a Resilient Salvador presents long-term planning, the establishment of initiatives and public policies that adopt resilience as a core value for generating dividends across multiple aspects of the city.

During the first phase of the construction of "Salvador Resiliente", chronic stresses impacting the quality of life in Salvador were identified through workshops, interviews and surveys with civil society, as well as the private and public sectors. As a result, the Strategy recognizes five pillars: Culture and Multiple Identities; Healthy and Engaged Community; Diversified and Inclusive Economy; Informed City and Innovative Governance; Sustainable Urban Transformation. These pillars comprise 60 priority initiatives for urban resilience.

(2) Plan for Mitigation and Adaptation to Climate Change (PMAMC)

To strengthen sustainable and resilient planning, Salvador completed the Salvador Plan for Mitigation and Adaptation to Climate Change (PMAMC), which was launched in December 2020. Considering geographical, territorial, historical, social and cultural characteristics, combined with information provided by a consultation process and diagnostic analysis based on greenhouse gas emissions inventories and climate risk indices, PMAMC defined four core visions for 2049.

They are:

- Inclusive Salvador. Embedding climate justice at the heart of public policy, reducing risks for the most vulnerable and integrating them into a positive spiral of sustainable development
- Verde-Azul (Green-Blue). Knowing that the city must focus on environmental protection to ensure quality of life for citizens and sustainable economic growth
- Resilient. Seeks to ensure conditions for sustainable and innovative urban and economic development that reduce existing social and spatial inequalities
- Low carbon. Committed to becoming carbon neutral by 2049

The PMAMC Task Force identified appropriate actions to deliver the objectives of the Plan. More than 150 actions underwent an evaluation process and were narrowed down to 57 actions distributed over the four pillars. Finally, it's important to indicate that the PMAMC added monitoring indicators to aid in the implementation of the actions.

Feature Activities

1.Activity 1: Solar Salvador

Solar Salvador seeks to generate environmental and social impacts through public policy that stimulates the use of photovoltaic solar energy.

Created by the Secretariat of Sustainability and Resilience, the program aims to combine sustainability and innovation by encouraging urban photovoltaic solar markets to stimulate local economies, create new jobs, reduce energy costs, reduce energy consumption and mitigate greenhouse gas emissions. It encourages behavioral change and promotes greater awareness of climate change and the importance of using renewable energy, particularly photovoltaic solar, through tax incentives for homeowners, socially inclusive environmental education and technology access.

2.Activity 2: New Mané Dendê project

The New Mané Dendê project is the largest revitalization project in Salvador's "Subúrbio Ferroviário" (Railway District), see Figure 9.11. The plan aims to decontaminate the Mané Dendê River, which runs through several neighborhoods in the city's suburbs, by improving urban infrastructure, housing, sanitation, education, health, environmental well-being, transport mobility and cultural accessibility as well as disaster risk prevention and improvements to the quality of surrounding communities. It includes five major communities, chosen because they currently present risks such as residential flooding and landslides. The project directly benefits 10,000 residents and 35,000 indirect beneficiaries.



Source: Salvador 2022, submitted by Salvador for the Shanghai Award 2023

Figure 9.11 The New Mané Dendê project site

The restoration of the natural landscape; one of the project's key initiatives, is closely linked to the local cultural-religious expression and character of the community's identity, including the river basin, the two waterfalls (Oxum and Nanã) and the São Bartolomeu Park. Another major initiative is the creation of a park that will ensure the reshaping of the area's urban environmental quality by creating a linear park along 3 kilometers of the river, expanding green areas and protecting the remains of the Atlantic Forest. The overall improvement scope reaches 800,000 square meters, involving extremely fragile environmental areas, aiming to establish a harmonious relationship between the natural environment and human activities.

3.Activity 3: Urban risk management policy

More than 40% of Salvador's population lives in dangerous areas, see Figure 9.12, and there are 400 risk areas and 1,000 risk points in the city. In April 2015, major accidents occurred in two communities in the city. Since then, the City Hall decided to conduct an administrative, budgetary, organizational, and technological restructuring of the Civil Defense of Salvador (CODESAL), which now has the same budget as the National Civil Defense.



Source: Civil Defense of Salvador, submitted by Salvador for the Shanghai Award 2023

Figure 9.12 Urban settlement in risk areas in Salvador

The new municipal risk management policy covers various ways to minimize and avoid the impacts caused by disasters, first by identifying and assessing existing risks, to know the probability and magnitude of the impact of disasters, should they happen; and by monitoring the main meteorological systems that cause rainfall, assessing the evolution of extreme weather events that pose risks and alerts the population about these events through the Salvador Civil Defense Monitoring and Alert Center (CEMADEC), composed of a

multidisciplinary team that operates on 24-hour shifts and has 74 monitoring stations, see Figure 9.13.



Source: Civil Defense of Salvador, submitted by Salvador for the Shanghai Award 2023

Figure 9.13 Meteorological monitoring station for disaster prevention

Besides that, CODESAL works with communitarian and educative actions, production of maps and an Operational Hydrometeorological Monitoring System. Through the establishment of the Community Civil Protection and Defense Centers (NUPDEC) and Civil Defense in Schools (PDCE), continuous and effective participation in civil defense activities is achieved. Hold meetings with community members to share experiences in community organizing, volunteering, risk analysis, first aid and other activities related to building civil defense capacity, see Figure 9.14.

Main Achievements

1. Impact

(1) Economic vitality and urban prosperity

Salvador360 is a large-scale plan to accelerate



Source: Civil Defense of Salvador, submitted by Salvador for the Shanghai Award 2023

Figure 9.14 Community approach to disaster preparedness and response

the economic and social development of Salvador, promote the modernization of urban infrastructure and the revitalization of the historical center, whilst also generate a series of actions to facilitate citizen life, attract businesses, create jobs and strengthen the informal economy.

A public policy called "Salvador Tech" promotes digitalization and social inclusion, encouraging and nurturing innovation, technology and an entrepreneurial culture in the city by offering free courses on the online technology ecosystem, as well as basic and information courses. A program of integrated actions called "Mulher Salvador" (Woman Salvador), guarantees the improvement and restoration of women's employability and income; whilst the Cultural District of the Historic Center and the Comércio (adjacent neighborhood) established by the City Hall, is an example of the participation of civil society organizations in community management through consultation and proposals.

(2) Green urban development

Overviewed by the Sustainable Urban Mobility Plan (PlanMob Salvador), the best alternatives for future mobility are studied and defined, considering proposals, plans and actions for different urban transport modes and infrastructure, aiming to improve the lives of citizens in the coming years quality. Fatal crashes fell by 52% between 2010 and 2020 as a result of key point interventions, an index above the UN road safety target.

(3) Urban safety and resilience

Communities and islands in Salvador implemented Morar Melhor (Better Life), which intervenes in precarious housing to reduce quality deficiencies in housing for the poorest in Salvador, contributing to SDG 6, 10 and 11.

Salvador also created the project Multiplica Defesa Civil (Multiply Civil Defense) which guides the population on how to act in risk situations mentioned in the new civil defense text, and spreads the concept of disaster prevention, and promotes SDG 13.

2.Sustainability

As mentioned above, Salvador has developed a resilience strategy, which establishes a long-term plan that sets out initiatives and public policies that recognize the reduction of socioeconomic inequalities as a key point in building resilient cities and gender asymmetries as a key component in developing more resilient cities. Effective public policies to enhance resilience gaps. The Inclusive Salvador Axis places climate justice at the heart of the program's goal to reduce risks for the most vulnerable groups and include them in a positive spiral of sustainable development. The Salvador Green-Blue Axis defends attention to environmental protection to ensure the quality of life of citizens and sustainable economic growth. For the Resilient Salvador axis, PMAMC's resilience concept focuses on climate adaptation, further seeking to ensure conditions that promote sustainable and innovative urban and economic development, reducing existing social and spatial inequalities. Finally, Low Carbon Salvador Axis seeks to maintain and innovate its production sector, promoting a low-emission economy until it reaches neutrality.

Learning Aspects

1. Innovation

Salvador has the Municipal Secretariat for Innovation and Technology (SEMIT), which, in addition to formulating strategies, policy guidelines and norms, also develops and approves technical specifications for equipment and projects purchased or leased by the city hall. The city published a Municipal Innovation Policy in 2020; legislation that creates incentives for local production and socio-ecological innovation, guided by the concepts of evidence-based management, inclusivity and sustainability.

The Public Policy Unit for People with Disabilities (UPCD) was established in 2016 to promote the inclusion of people with disabilities in the city's public spaces, in addition to expanding access to social assistance and combating poverty.

Decree No. 35,220 was adopted on March 4, 2022, institutionalizing the Program "Alerta Salvador" (AS) as a municipal public policy, which is dedicated to the Eradication of Violence Against Women and the creation of the Municipal Observatory of Violence Against Women of Salvador.

2. Adaptability

(1) Climate justice and social inclusion

In terms of improving population infrastructure, Salvador has been developing replicable integrated urban interventions focused on climate justice, social inclusion and the use of ecosystem-based adaptation alternatives. The goal is to identify and implement actions that promote social equity and gender equality in urban intervention projects that can subsequently be replicated in other regions.

Examples include the previously mentioned Salvador Solar Program, which encompasses the "Treinar para Empregar" (Train to employ) project, IPTU Amarelo (yellow IPTU) and Prefeitura Renovável (Renewable City Hall). The primary aim of these initiatives is to foster social inclusion, promote the creation of green jobs, and address both social inequality and carbon

emissions, see Figure 9.15.

(2) Citizen participation in community building

Another replicable aspect of participation in Salvador is the participatory process of involving citizens in the implementation of urban projects, see Figure 9.16. It is worth mentioning again, the Ouvindo Nosso Bairro ONB (Listening to Our Neighborhood Program) represents the largest mass consultation program in the city.



Source: Salvador 2022, submitted by Salvador for the Shanghai Award 2023

Figure 9.15 A sanitation worker cleaning up the street



Source: Salvador 2022, submitted by Salvador for the Shanghai Award 2023

Figure 9.16 Public engagement in environmental enhancement

The work done by CODESAL, aligned with social technology, has also stood out as a model to be followed. By promoting the active participation of the community, CODESAL promotes awareness and empowerment of the population, sharing information

about risks and providing guidance on preventive measures, strengthening the resilience of the city in the face of the challenges posed by natural disasters, see Figure 9.17.



Source: Salvador 2022, submitted by Salvador for the Shanghai Award 2023

Figure 9.17 Salvador city scape

(3) Tailor climate initiatives to cities and populations

The process of building Salvador's Climate Action Plan (PMAMC) involves considering the negative impacts of climate change on the most vulnerable, developing individualized and localized goals and initiatives for

the city and population. These operations stand out because they are easily replicable and scalable. By targeting the fundamental structures that make up urban environments, they promote the transition to a more sustainable economy, see Figure 9.18.



Source: Salvador 2022, submitted by Salvador for the Shanghai Award 2023

Figure 9.18 Efficient administrative system

Fuzhou, China

Abstract

Fuzhou is a typical coastal megacity that has successfully managed complex river ecosystems to cope with the impacts of climate change, see Figure 9.19. We will adopt a low-carbon development model in the long term to develop a high-tech, digital economy, marine industry, cultural tourism and other industries. Fuzhou takes urban resilience and safety as its bottom line, implements urban water system management projects, optimizes water resource

allocation, and reduces water use and waste. The city promotes sustainable environmental strategies and build a green, low-carbon, eco-friendly city that is a “city of a thousand gardens”. Fuzhou has developed 18 sustainable development community pilot projects, with many regional organizations actively participating in them. This is also a valuable experience that other cities can learn from. One of the typical cases of comprehensive management of Fuzhou's water system is the Liuhuaxi project, which has enhanced the city's water security and flood control capabilities, improved the living conditions of residents along Liuhuaxi, and accelerated inland shipping and tourism, heritage protection, and social welfare and equitable development.



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.19 Fuzhou city scape

Development Context

1. Overall situation

Fuzhou is the capital of the Fujian Province, located on the southeast coast of China, facing East and Southeast Asia, see Figure 9.20. With a coastline stretching for 340 kilometers and three excellent deep-water ports, it is known as the provincial capital city with the second highest forest coverage rate in China. It has rich natural resources and a continuous history of 2,200 years.



Source: Drawn by the authors based on Google Map

Figure 9.20 Fuzhou's location

Fuzhou City has long adhered to a low-carbon development model, with a vigorously developed high-tech, digital economy, marine industry, cultural tourism and other industries, and has achieved remarkable results in sustainable development.

(1) Fuzhou's economy has achieved sustained and stable development: the number of listed companies and high-tech enterprises in the city has continued to grow, and the regional GDP has reached US\$173.1 billion. Over the past five years, Fuzhou's GDP growth rate has been the fastest among the top 20 cities in the country, with an increase of 56.2%. Additionally, the city eliminated poverty in 2020.

(2) Fuzhou has achieved a moderately prosperous

society and social equity: the city's compulsory education, medical care, elderly care and other public services have been fully covered, the social security system for disadvantaged groups has been further improved, and the unemployment rate has been below 3% for many years.

(3) Fuzhou has achieved remarkable results in pollution control and in regard to the city's ecological environment: In 2022, the number of days with good air quality in Fuzhou had reached 97.5%. The city has eliminated polluted water bodies, and the quality and quantity of forests continue to increase. In addition, significant progress has been made in urban wetland protection and park greenway construction, see table 9.3.

Table 9.3 Basic city data for Fuzhou

No.	Index	Data	Notes
1	Urban permanent population (2022)	8.448 million people	
2	City administrative area	11 968 km ²	
3	Urban built-up area	410 km ²	
4	GDP per capita (2022)	\$20,491	

Source: Materials submitted by Fuzhou for the Shanghai Award 2023

2. Main challenges encountered

Fuzhou's continuous and rapid urbanization process over the past 40 years has also brought huge pressure on natural resources and the ecological environment. Responding to typhoons, floods and other disasters caused by global climate change and ensuring a high quality of life for local people have brought about huge challenges for Fuzhou.

Sustainable Development Strategy

1. Overall strategy

Fuzhou's sustainable development strategy involves social, economic and environmental development and can be summarized as follows:

(1) Adhere to the sustainable development strategy, based on stable and sustainable economic development,

accelerate economic structural adjustment, focus on the green economy, and promote the development of the digital economy.

(2) Taking urban resilience and safety as the bottom line, Fuzhou is committed to promoting water conservation, enhancing flood control and drainage capabilities, implementing urban water system management projects, optimizing water resource allocation, and reducing water use and waste. These water management measures aim to create a safe, resilient city and build a sustainable future for Fuzhou.

2. Action strategy

(1) Promote sustainable environmental strategies and build green, low-carbon and eco-friendly cities

- Implement the ecological protection and restoration plan for the mountains, rivers, forests, farmlands,

lakes and grasslands in the Min River Basin and promote biodiversity protection.

- Strengthen the management and control of marine garbage and protect the marine ecosystem.
- Implement the Fuzhou TOD strategy, promote the construction of green transportation infrastructure and public transportation, and advocate green travel methods.
- Develop clean energy, reduce carbon emissions, and respond to climate change.

(2) Implement a social sustainable development strategy

- Promote sustainable development policies and measures in the community. Fuzhou has built 18 pilot projects for sustainable development communities, and “no one is left behind.” The city also eradicates poverty and strives to create harmonious and equitable urban communities.
- Improve public services. Fuzhou adopts measures such as employment assistance and guidance, affordable housing for low-income families, the development of medical facilities, ensuring the health and well-being of residents, and providing high-quality 12-year education.

- Encourage public participation. Fuzhou encourages communities and residents to participate in urban management and development by participating in urban monitoring and writing to the mayor, and builds an urban management system in which the government and communities participate, and which is inclusive and equitable.

Feature Activities

1. Activity 1: Integrated water system management to build safe and resilient cities

Fuzhou is susceptible to natural disasters such as floods, heavy rains, and typhoons all year round. River flooding in the city has been essentially eliminated, however, it is urgent to solve problems such as urban waterlogging and polluted water bodies, see Figure 9.21.

In 2016, Fuzhou launched comprehensive management of the city's water system. Enhance urban security and resilience by controlling flash floods, cleaning up sludge, expanding inland rivers, enhancing urban water diversion and storage capacity, and improving urban pipe networks.

This project focuses on the treatment and improvement



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.21 Jin'an Lake Park in Fuzhou

of 139 inland rivers, lakes and reservoirs in the urban area . A typical example is the Liuhuaxi treatment project: 4.4 kilometers in length, construction of 7 kilometers of sewage interception pipelines, 22 interception wells, and 1 reservoir. 638,000 cubic meters of river garbage and waste were collected, which improved the region's flood control and drainage capabilities and its ability to withstand and recover from natural disasters such as typhoons and heavy rains. In addition, it provides safe, livable and resilient urban settlements for 133,000 residents along the river, especially 78,000 low- and middle-income people.

Through the management of more than 100 inland rivers such as the Liuhua River within the urban area, Fuzhou has built a comprehensive urban flood control and drainage system, providing a safe and resilient city for more than 8 million residents.

2. Activity 2 : Promote the sustainable development of the urban environment through the "City of Thousand Gardens" initiative

Fuzhou's urban area is rich in natural resources . However, rapid urbanization has led to the shrinking of mountain space, illegal sewage discharge and pollution of water bodies, and urban green spaces and public spaces cannot meet the needs of residents and tourists. Fuzhou promotes sustainable development within the urban environment via the "City of Thousand Gardens" initiative.

The "City of Thousand Gardens" initiative; represented by greenways such as Fu Trail, suburban parks such as Fushan, and flow parks such as the Liuhua Stream Park, has made active attempts to build urban ecological corridors and promote ecological restoration, increasing the quantity, quality and functionality of green space, see Figure 9.22. Relying on riverside greenways and urban community renewal, Fuzhou has 207 string parks and 156 pocket parks to serve citizens. In recent years, 650,000 trees have been planted, allowing people to find parks within 500 meters. As of the end of 2021 , Fuzhou has built 142 square kilometers of green space, including 54 square kilometers of park area. The city has built 1,003 parks and green spaces, with an average green space area of 14.8 square meters per capita. The green space has



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.22 Fu Forest Trail in Fuzhou

a reasonable structure, balanced distribution, and is shared by all people.

3. Activity 3 : Build sustainable urban communities

Since 2016, Fuzhou vigorously promoted the construction of sustainable communities with the themes of "green and environmentally friendly development" and "no one left behind".

In terms of green, environmentally friendly development, Fuzhou is making every effort to reduce carbon emissions and create a resilient and livable community. Focusing on the needs of residents, Fuzhou continues to build "perfect communities" and "15-minute living circles" to allow people to meet their daily needs in facilities that are within walking or cycling distance; comprehensively promoting green buildings, reduce energy consumption and garbage generation, and promote urban development sustainable development.

Not to leave anyone behind, Fuzhou also focuses on disadvantaged groups and carries out urban renewal to meet the needs of children, the elderly and the disabled. The government launches the "Canteen for the Elderly and School for the Elderly" project see Figure 9.23; formulates child-friendly policies and launch child-friendly construction projects covering, health , education, child care, etc.; improves barrier-free facilities in various key venues and conducts renovation and upgrade pilot projects, see Figure 9.24.



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.23 Community canteen at Xiangyuan in Jin 'an District, Fuzhou



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.24 Fu Forest Trail in Fuzhou

Main Achievements

1. Impact

(1) Economic vitality and urban prosperity

Fuzhou's GDP growth rate in the past ten years ranked second among major cities in China ; during the same period, the disposable income of urban residents increased by an average annual rate of 7.2%. Significant results include:

- Actively promote the development of a green economy and digital economy. The total scale of the city's digital economy accounts for more than half of the city's GDP, and the scale and growth rate of the digital economy ranks first in Fujian Province;
- Pay attention to the combination of culture and tourism, and innovatively leverage the resources of the old city to drive urban consumption and tourism. Among them, the Yantai Mountain Historic District has become the main driving force for the economic revitalization of Fuzhou in the post-epidemic era;
- Employment assistance stimulates the vitality of the city's economy. Through measures such as increasing investment in education, establishing a platform for youth entrepreneurship, and strengthening labor security and rights protection, the employment rate of residents is ensured. The city's unemployment rate has remained below 3% since 2016.
- Further strengthen employment support for disadvantaged groups, encourage companies to hire disabled people through preferential tax policies, and provide vocational skills training for urban and rural women to support their entrepreneurship and employment, and promote social welfare and equity.

(2) Green city development

- Promote a livable urban environment. Fuzhou continuously strives to reduce pollution and carbon emissions and promote the development of a livable city. In 2022, the proportion of days with

good air quality in Fuzhou will reach 97.5%, and the air quality ranks fifth among 168 major cities in the country.

- Promote inclusive urban development. Fuzhou's urban development has always adhered to the principle of "leaving no one behind". Fushan suburban parks and Fushan trails among others, etc. have contributed to a new model of harmonious coexistence between man and nature, meeting the recreational needs of different groups such as the elderly, disabled people, and children.
- Promote the development of resilient cities. Fuzhou enhances urban resilience by building ecological corridors, carrying out ecological restoration, increasing crop land area, and shaping urban wind corridors.
- Promote sustainable urban development. Fuzhou has implemented carbon reduction measures in the development of urban green spaces throughout the entire process from construction to operation, reducing the Urban Heat Island (UHI) effect and combating global climate change.

(3) Urban safety and resilience

In the past five years, Fuzhou's ability to cope with natural disasters such as typhoons and heavy rains has improved. Urban drainage capacity can withstand waterlogging that occurs once in 20 years, urban drainage and flood control emergency efficiency is increased by 50% from a once-in-five-year event, and urban water diversion and storage efficiency is increased by 30%. In recent years, our city has withstood 12 typhoons and 289 short-term heavy rainfalls, providing a strong shelter for the safety of urban residents.

Specific achievements include: Constructing a mountain flood defense line in the north; Controlling water pollution sources; Improving inland river connections and enhancing storage capacity; Improving emergency drainage systems; Strengthening urban sewage treatment capabilities; Improve the urban pipe network.

2.Sustainability

Since 2016, Fuzhou has continuously improved

its sustainable development capabilities in digital governance (smart government systems), public participation, sustainable investment and financing:

(1) Sustainable digital governance (smart government system). Fuzhou has built digital platforms such as "eFuzhou" to provide the public with social services such as daily services, public services, government services, improving the quality and efficiency of urban public services, and enhancing sustainability within urban governance, see Figure 9.25.

(2) Sustainable public participation. By formulating and implementing a public participation system for major administrative decisions, conducting various



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.25 (two as a set) Visualized tunnel refinement

public activities over a long period of time, establishing transparent public supervision, and forming sustainable public participation, see Figure 9.26.



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.26 Smart platform for water system management

(3) Sustainable investment and financing. Actively promote the government-private partnership development model; mainly use the build - operate - transfer (BOT) and transfer - operate - transfer (TOP) methods to complete railway line 2, water system management and other projects. This model achieves mutually beneficial cooperation and risk sharing between private capital and the government, improves the efficiency and quality of construction projects, reduces the pressure on government financial expenditures, and strengthens public participation. This will provide sustainability of investment and financing while creating more job opportunities for society.

Learning Aspects

1. Innovation

(1) Regulatory innovation: In order to support the management of water conservancy projects, Fuzhou revised and improved the "Urban Inland River Management Measures (2019)" and formulated and implemented the "Urban Inland River Management Measures Implementation Rules".

(2) Governance innovation:

- Comprehensive and integrated management: Fuzhou improves the urban management mechanism and establishes a comprehensive management

organization. The city's joint drainage and water transfer center is the first innovative practice of its kind in the country. The center implements a management mechanism of "integrated management of multiple rivers and integrated operation of network, factory and river" to realize integrated dispatch and management of urban reservoirs, lakes, inland rivers, water storage basins and gate stations.

- Smart management innovation: Fuzhou combines digital technology with sustainable development. For example, the country's first municipal water dispatch system was established to realize the transformation from "extensive dispatch" to "precision dispatch"; an "eye", "brain" and "hand" intelligent platform was created to achieve remote control and adjustment and unified emergency command. Through digital empowerment, the city has achieved intelligent, efficient and precise management and control of hundreds of reservoirs, lakes, ponds, rivers, gate stations, etc. in the urban area.
- Innovate supervision mechanism. Fuzhou has established a public supervision mechanism and provides a variety of public supervision and complaint channels. Taking the water system management project as an example, in addition to making complaints through traditional methods such as the complaint hotline and the 12345 platform, the public can also make complaints through the WeChat official account. The public are encouraged to use their mobile phones to report illegal activities, and rewards will be given to those who report illegal activities on rivers.

2. Adaptability

(1) Water system management: Fuzhou has extensive experience in water management, urban drainage and flood control system construction, innovative joint drainage diversion mechanisms, and utilization of intelligent platforms. Other cities can learn from Fuzhou's flood control and drainage system construction experience and intelligent water management platform within their own water system management to enhance urban resilience and disaster

prevention and reduction capabilities.

(2) Construction of a city of thousands of gardens: The construction of Fuzhou's green space system, especially the ecological construction of suburban parks and Fuzhou trails, as well as the restoration and protection of wetlands such as Fuzhou Nanjiangbin Ecological Park , are note worthy practices to learn

from, see Figure 9.27、 Figure 9.28.

(3) Promote sustainable communities: Innovative land use models for elderly care facilities, "senior canteens, elderly schools", smart elderly care service platforms and other measures can monitor the safety status of the elderly in real time. Fuzhou's elderly care service model has been promoted nationwide.



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.27 Aojiang River Wetland Natural Reserve



Source: Materials submitted by Fuzhou for the Shanghai Award 2023

Figure 9.28 Shangxiahang Historical and Cultural Block, Fuzhou

Kampala, Uganda

Abstract

As a major player in the national economy contributing over 65% of the GDP. Kampala has developed a five-year development plan for 2020—2025, which hinges

on four pillars: economic growth, governance and citizens engagement, quality of life and city resilience, see Figure 9.29. Kampala has developed a forward-looking plan that incorporates the multiple dimensions of the city's sustainable development objectives within its established development practices and development plans, and has developed a program for their implementation.



Source: <https://vistapointe.net/kampala.html>

Figure 9.29 Kampala city scape

Development Context

1. Context

Kampala is a business hub with over 140,000 business establishments including health and education institutions, contributing to 65% of the GDP in the national economy. Kampala is also a renowned cultural and religious location hosting over 5000 religious worship centres and a great tourist attraction with many scenic sights such as the City Hall, see Figure 9.30, table 9.4.

2. Main challenges encountered

A number of challenges have arisen in the process of urban development, including issues of road safety and ecological problems.



Source: Drawn by the authors based on Google Map

Figure 9.30 Kampala's location

Table 9.4 Basic city data for Kampala

No.	Index	Data	Notes
1	Population (2022)	1,500,000	
2	Municipal Administrative Area Size	189 km ²	
3	Built-up Area Size of the city	169 km ²	
4	GDP Per Capita (2022)	\$2,900	

Source: Materials submitted by Kampala for the Shanghai Award 2023

Sustainable Development Strategy

1. Overall strategy

The Kampala Capital City Authority (KCCA) is mandated to meet its statutory obligation of preparing Five-year Development Plans as provided for in the law and thus the 2020—2025 strategic plan. The plan is hinged on four pillars that is economic growth, governance and citizens engagement, quality of life and city resilience.

A number of projects have been initiated, including the Physical Development Plan, the Drainage Master Plan, the Transportation Master Plan, the Sanitation Improvement and Financing Strategy, Public Health Strategic Plan, Smart City Strategic Plan, Disaster Risk and Climate Change Resilience Strategies.

2. Action strategy

In response to urban development issues, Kampala has proposed a range of action strategies that are in line with the SDGs, such as the Kampala City Roads Rehabilitation Project (KCRRP), and the Road Safety Strategy (RSS) to address safety in transportation, and has launched the Kampala City urban forestry project in response to climate change needs.

Feature Activities

1. Activity 1: Kampala City Roads Rehabilitation Project (KCRRP)

As part of the ADB Country Strategy Paper preparation to cover the period 2017—2021, GOU held discussions with the ADB mission team and identified five

components for the Kampala City Roads Rehabilitation Project (KCRRP). The development objective of the project is to accelerate Uganda's competitiveness by shoring up productivity gains from infrastructure development in Kampala and integrating the growth spillovers via efficient transportation networks to the rest of the country, see Figure 9.31.



Source: <https://www.kcca.go.ug/kcrrp>

Figure 9.31 Kampala City Roads Rehabilitation Project

2. Activity 2: JICA/KCCA Traffic Improvement Road Safety Campaign

In order to enhance road traffic safety, the KCCA has adopted a traffic control system where a pedestrian or cyclist that intends to cross at a traffic controlled junction must demand for green time by pushing the button otherwise no green time will be provided.

In other words, the traffic lights continue to allocate green times for vehicle traffic unless there is a demand for pedestrian to cross the junction. This improves

the traffic as the unnecessary green time allocated for pedestrians in each cycle will have been eliminated. This measure improves traffic flow by reducing unnecessary green time for pedestrians, see Figure 9.32.



Source: <https://www.kcca.go.ug/news/494/kcca-inpartnership-with-japan-international-cooperation-agencyjica-launch-the-traffic-improvement-road-safety-campaign>

Figure 9.32 Traffic Improvement Road Safety Campaign

3. Activity 3: Road Safety Strategy (RSS)

SDG 3.6, sets a target to halve the number of global deaths and injuries from road traffic crashes. In response to the aforementioned UN resolution, the Uganda Government launched the first ever National Road Safety Action Plan 2021/2022—2025/2026 which recognizes that human factors contribute over 80% of the road crashes. It comprises of five Areas of Action: Road Safety Management, Safe Road Infrastructure, Vehicle Safety, Safe Road Use and Post-Crash Response.

The main goal of the City Road Safety Strategy is to strengthen road safety related policies to protect road users and as a result, reduce road crashes, fatalities and injuries in Kampala City by 50% by the year 2030.

Main Achievements

1. Impact

(1) Economic Vitality and Urban Prosperity

Kampala City plays a lead role in the Africa Smart

Towns Network. The KCCA places a strong emphasis on automation of processes in service delivery like Revenue Management System (e-Citie), Smart Permits, Traffic Control Centre, Digital Communication among others and thus improving service delivery.

(2) Green Urban Development

The KCCA launched the Kampala Climate Change Action Plan of 2016 in line with the Paris Agreement, the UN Framework Convention on Climate Change ratified in 1993, the Abidjan Declaration, and SDG 11 and 13, to take responsibility for responding to environmental change.

(3) Urban safety and resilience

In response to SDG 3.6, aiming to halve the global number of deaths and injuries caused by road traffic crashes, Uganda launched its first ever Road Safety Strategy to minimize crash deaths and improve safety in urban development by mitigating all factors that are a precursor to an accident eventuality, see Figure 9.33.

2. Sustainability

The Kampala City Strategic Plan 2020/21—2024/25 has been prepared as the bedrock of the socioeconomic transformation of the city over the next five years. Based on various studies including the the Kampala Physical Development Master plan, the Greater Kampala Metropolitan Area (GKMA) Multi Model Urban Transport Master plan, the Kampala Drainage Master plan and the Kampala Climate Change Strategy, development priorities for the next five years have been formulated and the implementation of the strategic plan will accelerate Kampala in achieving its vision of becoming a vibrant, attractive, liveable and sustainable city, see Figure 9.34 to Figure 9.37.

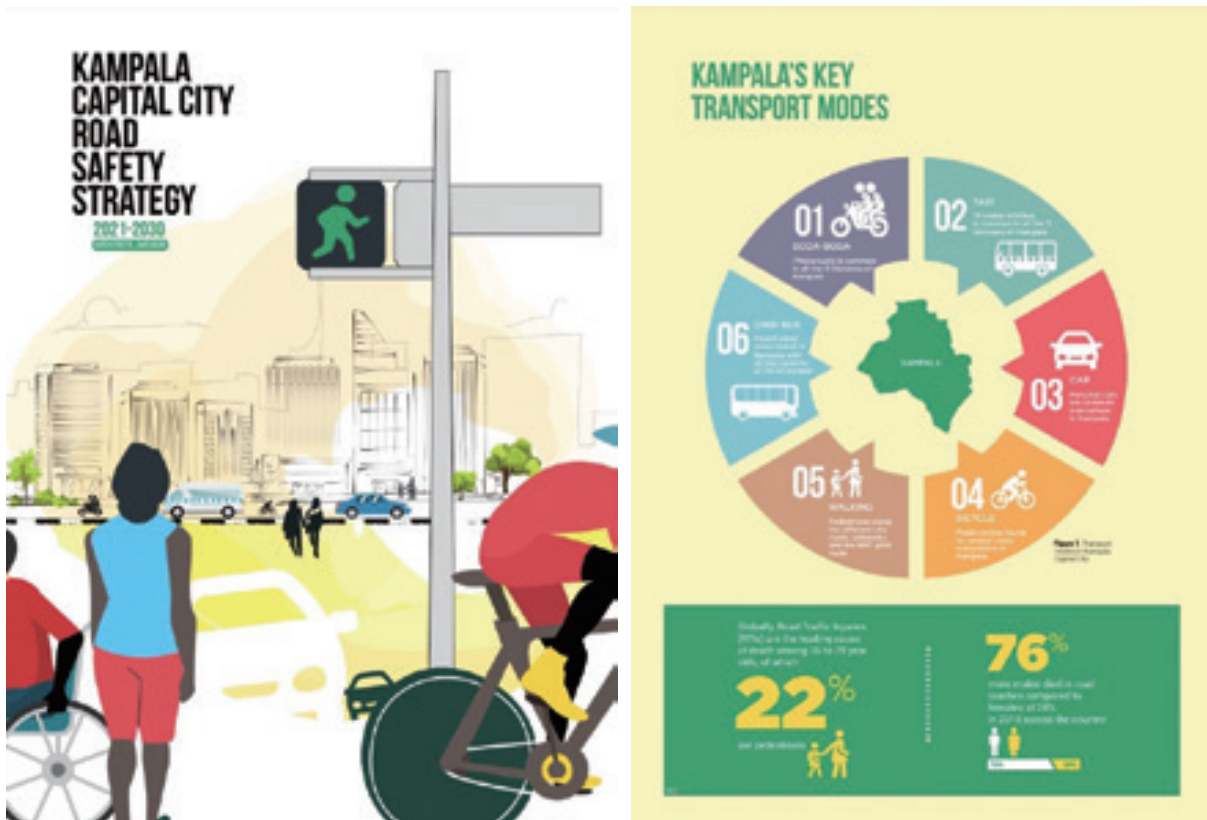
Learning Aspects

Adaptability

Building on the collaborative efforts of the urban development partners in Uganda, in particular the World Bank, Program on Integrated local finances for sustainable urban development (PIFUD) supports the roll-out of the revenue automation system in the municipalities of Nansana, Makindye Ssabagabo

and Entebbe. This implementation was led in close collaboration with the Local Government Finance Commission. This collaborative dynamic is reflected in the strategic thinking to identify financing gaps,

enhanced management tools and new financing alternatives to accelerate the achievement of the aligned 5 years local, metropolitan, and national development plans.



Source: <https://www.kcca.go.ug/media/docs/Kampala%20Road%20Safety%20Strategy%202021-2030.pdf>

Figure 9.33 (two as a set) Road Safety Strategy



Source: Google Earth

Figure 9.34 Kampala street texture



Source: <https://www.kcca.go.ug/media/docs/Kampala%20Road%20Safety%20Strategy%202021-2030.pdf>

Figure 9.35 Urban road conjunction



Source: <https://prestigehotelsuites.com/visitingkampala-uganda/2018/07/03/the-5-top-tourist-attractionsplaces-to-visit-in-kampala/>

Figure 9.36 Gaddafi National Mosque in Kampala



Source: <https://www.earthattractions.com/localstravel-guide-kampala-uganda/>

Figure 9.37 Kampala city scape

George Town, Penang, Malaysia

Abstract

George Town, as an important trading port in Malaysia, and a hub of industry, with a cultural tourism and creative economy, as well as a world cultural heritage site, see Figure 9.38. In order to meet the challenges of climate change and realize sustainable development, Penang proposed the Penang2030 Vision, based

on the natural climate adaptability and public and multi-agent participation, and implemented a series of comprehensive urban governance measures, including: investing in creative and culture-related infrastructure to increase employment and economic opportunities; implementing the safe city plan; formulating the comprehensive disaster reduction and risk management; urban renewal of low-cost housing; responding to rapid urbanization and environmental challenges, continuously introducing policies and plans, and launching the Energy Management Plan (REMS) plan. Penang has built a progressive and resilient economy, a cleaner green environment, cultural diversity and sustainable development capacity.



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.38 City scape of George Town

Development Context

1. Context

Located in the northeast corner of Penang Island, Penang was founded and taxed in 1800, see Figure 9.39. It became a municipality in 1976 and was upgraded to the capital of Penang Island in 2015. Penang has a rich historical background, mainly with trade, resource-based industrial activities and tourism as the economic pillar, and in the 1970s became the Malaysian electronics and electrical (E & E) industrial center, contributing to the development of Malaysia. Penang's tourism industry has been greatly boosted as a designated UNESCO World Heritage Site, see table 9.5.



Source: Drawn by the authors based on Google Map

Figure 9.39 George Town's location

Table 9.5 Basic city data for George Town City

No.	Index	Data	Notes
1	Urban permanent population (2022)	794,300 people	
2	City administrative area	305.77 km ²	
3	Urban built-up area	93.49 km ²	
4	GDP per capita (2022)	\$12 736.9	

Source: Materials submitted by George Town for the Shanghai Award 2023

2. Main challenges encountered

At the same time, rapid urbanization and expansion has also brought about environmental challenges. The city adopts multiple policies and programs to address these issues and reduce their carbon footprint. In 2018, the city introduced the "Penang 2030 Vision" with a strong focus on sustainability, livability, and technology-driven smart development across various domains. The goal is to manage and implement sustainable development initiatives through technology, creating more green and blue spaces for the local community and the region, enhancing the quality of life, and establishing a progressive, resilient, eco-friendly smart digital city.

Sustainable Development Strategy

1. Overall strategy

The "Penang 2030 Vision", introduced by the Chief Minister of Penang, centers on "livability, economy, people, and the environment". The slogan is to transform Penang into a "Family-Focused Green and Smart State that Inspires the Nation", emphasizing intelligence, livability, and happiness to build a progressive and sustainable city.

2. Action strategy

This vision encompasses all SDGs, with particular emphasis on:

SDG3 — Good Health and Well-being: emphasizing a cleaner, greener, safer, and healthier city for enhanced livability.

SDG7 — Affordable and Green Energy: ensuring

universal access to affordable, reliable, sustainable, and clean energy.

SDG9 — Industry, Innovation, and Infrastructure: focusing on maximizing public spaces for the well-being and safety of citizens.

SDG11 — Sustainable Cities and Communities: with various programs and action plans being implemented to reach this goal, back lane transformations, the Penang "Green Connector", etc.

SDG13 — Climate Action: tackling climate change through measures such as urban greening and stormwater management.

SDG17 — Partnerships for the Goals: continuously reinforcing global partnerships with twin cities, sister cities, and friendship cities, sharing similar sustainable development benchmark and using the 3P concept (public-private professional partnerships) to finance and promote project implementation.

Feature Activities

1. Activity 1: Green connectivity and mobility (2018—2021)

The city prioritizes Green Connectivity and Mobility projects, see Figure 9.40, such as back lane transformations, pedestrian-friendly schemes, dedicated bike lanes, a free shuttle bus service (CAT), intelligent parking system, urban walking and cycling, see Figure 9.41, a green renaissance, street tree planting, business improvement area planning (BI), reducing traffic jams and improving the walking



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.40 Back lane transformation



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.41 Bike lane

experiences, to create a safe and convenient integrated transportation system, improve urban accessibility and overall quality of life, and to reduce carbon emissions by approximately 2900 tons.

2. Activity 2: Climate adaptation (2016—2021)

The city faces climate change challenges, including rising temperatures, drought, UHIs and rising sea level levels, and has launched a Nature-based Climate Adaptation Programme in which a set of components has been implemented: increasing urban greening to reduce heat, using green corridors to manage

rainwater, and strengthening social resilience and institutional capacity. Successful projects like the Armenian Park, Sia Boey Park, coastal promenade, new street trees, Sungai Ara Linear Park and Prangin Canal rejuvenation demonstrate the program's effectiveness, see Figure 9.42, along with initiatives like the Green School Programme, see Figure 9.43 and sustainable energy training to enhance social resilience.



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.42 Sungai Ara Linear Park

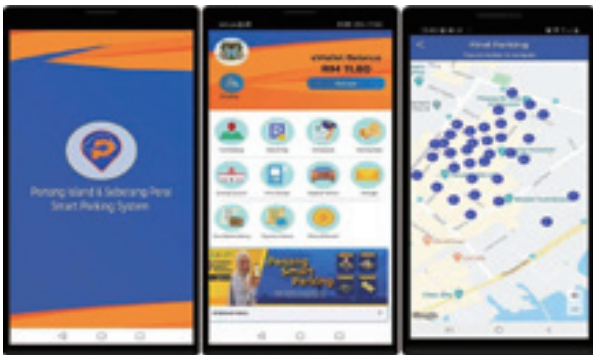


Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.43 Green building renovation project at Chowrasta Market

3. Activity 3: Towards renewable energy - Environmental Protection and Green Economy (2017—2021)

The city promotes electrification and the installation of electric vehicles and renewable energy equipment. George Town City works with the Penang Green Council to install free electric motorcycle charging stations and install solar panels to encourage new buildings and restore old buildings to transition to energy-efficient buildings, thus saving energy, see Figure 9.44. The BYOC project discourages the use of polystyrene containers and plastic bags, supporting environmental and social responsibility. ESG and circular economy principles are integral to city projects, encouraging industry players to adopt sustainable practices. These initiatives align with the goal of creating a low-carbon, liveable, and smart city while addressing climate concerns, see Figure 9.45.



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.44 Penang Island & Seberang Perai smart parking system



Source: Materials submitted by George Town for the Shanghai Award 2023

Figure 9.45 Green campus project

Main Achievements

Impact

(1) Economic vitality and urban prosperity

Creative Economy: Since 2016, Penang Island has attracted 419 creative content businesses, including IT companies, marketing, and film production.

Business Friendly Environment: To encourage business, the city council streamlined the license application process, offering 24-hour rapid approvals.

Digital Economy For Merchant: The city promotes e-commerce in various ways, such as the "Let's Buy Online" campaign, providing an online trading platform for merchants and consumers.

Going Cashless: Since 2019, the city has fully accepted cashless payments, offering a variety of online payment methods.

PEARL Application: An integrated app offering multi-channel solutions, supporting online payments, shopping, etc.

(2) Society

Safe City Programmes: By increasing lighting, setting up pedestrian paths, installing safety mirrors, and signs, the city's safety has been enhanced.

Disaster Risk Management Plan: Disaster management capabilities in the city have been enhanced via the Intelligent Operation Centre and a disaster response team.

Climate Adaptation: Invested USD 3.525 million to implement urban greening projects to address climate change.

International-Level Capacity Building Programs: Participated in multiple international conferences and organizations, strengthening cooperation with international partners.

Workshops and Training: Cooperated with the Penang Women's Development Corporation to provide various workshops and training for staff and community

members.

Learning and Development Programs: Launched MakerSpace, providing educational opportunities in science, technology, engineering, arts, and mathematics for students and the public.

Healthy Ageing Initiatives: In response to the growth of the elderly population, the city has invested in healthy aging initiatives, such as setting up shelters for the homeless and providing health care.

(3) Environment

Mobility As A Service: To promote green mobility, the city has built 205 km of bicycle paths and launched the LinkBike shared bicycle service.

Retrofit Energy Management Schemes: Converted all street lights to LEDs, saving a significant amount of energy and cost for the city.

BIDS: The scheme aims to upgrade and revitalize the urban area, providing a safer, greener environment for pedestrians and cyclists, see Figure 9.46.



Source: Materials submitted by George Town City for the Shanghai Award 2023

Figure 9.46 Armenia Park, George Town Penang

Long-term Development Strategy: Addressing housing affordability by increasing housing supply and improving low-cost housing; improving public safety and cleanliness, enhancing welfare and care systems, and supporting youth development; promoting

investment in STEM, TVET, and green technology, improving the competitiveness of local manufacturing; improving agriculture modernization and sustainability, and creating diverse tourism products; enhancing platforms for public participation in decision-making, and accelerating project delivery through big data-driven decisions; implementing long-term adaptation plans for climate change.

People-centered Approach: Improve the quality of life of vulnerable groups, strengthen the participation of youth, women and elderly in community life, and develop more platforms for public participation in decision-making.

Financing and Investment: Penang's city budget, grants, PPPs, development costs, CSR, and others to support the city's sustainable development strategies and activities.

Institutional Capacity Building: Providing comprehensive care services for vulnerable groups, promoting gender equality, empowering women and youth, and creating age-friendly cities.

Learning Aspects

Policy and Legislation: Penang uses the digital Twin Cities platform to assess the feasibility, infrastructure needs and sustainability of new projects. This platform integrates advanced technology, intelligent infrastructure, and digital solutions to improve the quality of life of the residents.

Planning and Design: Penang plans to build green transportation, green infrastructure development, green building and sustainable waste management to promote the sustainable development of the city.

Urban governance: Establish an open data portal, e-procurement system, smart city plan, and cooperation with NGOs to improve efficiency, transparency and citizen participation in governance.

Financing mechanism: Penang funds its projects and plans through public-private partnerships, private financing and performance-based contracts. Others:

Penang is also actively promoting community-building projects, such as the Safe Home Program, the Garbage-free Penang Project, and the Penang "Green

Connector", to increase cohesion in the city, see Figure 9.47.



Source: <https://www.tripsavvy.com/topthings-to-do-in-george-town-penang-4687174>

Figure 9.47 (two as a set) George Town scape

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