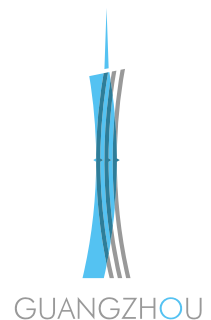




Guangzhou Institute for Urban Innovation

URBAN INNOVATION TRENDS: A GLOBAL REPORT

FOUR-CYCLE REVIEW OF THE GUANGZHOU INTERNATIONAL
AWARD FOR URBAN INNOVATION





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Preface

Celebrating 4 cycles of the Guangzhou Award

As we are completing the review of four cycles of the Guangzhou Award, let us share our appreciation and congratulations to the City of Guangzhou for the very substantive work which has fed into the work of UCLG and Metropolis alike.

Since its creation almost ten years ago in 2012, not only have we been able to make the case that innovation improves social, environmental and economic sustainability in our territories, but also allows our cities and regions to advance on prosperity and the quality of life of their inhabitants. Furthermore, the awards have been evolving and adapting to the changing conditions of urban development without losing its essence.

This would not have been possible without the leadership of the City of Guangzhou. We are proud that our organisations have been convening and supporting the four cycles. And we are glad of the continuous engagement of our membership and partners.

As we face the most difficult crisis for the past fifty years, the knowledge, practices and cases gathered by the Community through the Award demonstrate that the focus remains all the more relevant in order to address inequalities and protect the most vulnerable members of our respective societies. It has placed people at the centre of urban innovation. And it also confirms that the SDGs remain the valid framework for transformation and for innovation.

All in all, the Award demonstrates the scale of the challenges at the local level, and provides a thrilling example of how local and regional governments lead through innovation in their respective territories. Our local knowledge and resolve have been critical to provide services during the pandemic, and local perspectives need to be considered when taking decisions in the global sphere. But the biggest change that we will need is to transform the way that decisions are being made and our governance structures.

The current context is demonstrating that everything can change and that models that do not protect the most vulnerable need to be challenged. This is why the Award remains so relevant to what our local leaders do best at local level: innovate.

As we emerge from the current pandemic, we will also need to enter a new era for urban innovation. We will need to revisit the morphology of our urban settlements and to do so from a different perspective in which time and technological infrastructure play a much bigger role than they have done till now. Mobility will acquire a new meaning in the post-COVID era; public space and who and how they access it will also need to change as we grapple with the impact that COVID-19 has had in this regard.

Neighbourhoods will become more important centres of our life and polycentrism will need to be an integral part of the governance architecture of cities big and small. Giving voice to communities, involving different stakeholders and exchanging experiences from different contexts will need to inspire us, to open our mind for future opportunities. Most of the past editions of the Guangzhou award edition have made special emphases on co-creation with stakeholders and communities.

This is the spirit of the Guangzhou Award and, in our view, this is how it will continue to be.

In this new phase, it will be critical to ensure that each level of government has the capacity, both technical and financial, to address the needs that arise after the outbreak. It will be imperative that decisions are made at the level closest to the problem and vertical and horizontal integration will be critical. Sectoral approaches do not work anymore.

Our problems are too complex and interdependent. Our public service delivery will need to overcome access barriers and make sustainable use of our common resources. Low-tech solutions, community knowledge and the circular economy need to play a bigger role in our societies. This does not imply losing the connection with the world and reverting back to old models, but making sure that connection provides added value. The solution to global problems needs to be based on local knowledge and respond to the needs of our communities.



Emilia Saiz
Secretary General
UCLG

Setting the frame for the fifth cycle, let us be bold and build proposals that take into account global challenges. Local Action with global vision is what we need. We cannot wait to see the proposals we receive; we have high hopes that the initiatives we see will be critical to developing a world that leaves no-one behind.

I am sure the next edition will be even more memorable than the four before, rising to the historic moment that we are living in, and leading the way towards a Pact for the Future, to redefine the relationship between people, planet, and government.



Octavi de la Varga
Secretary General
Metropolis

Foreword



As a metropolis with over 22 million inhabitants, the City of Guangzhou has, throughout its 2000+ year history, been open, inclusive, innovative, enterprising and active in exchanges and cooperation among cities all over the globe. In 2012, the Guangzhou International Award for Urban Innovation (Guangzhou Award) was co-founded by the City of Guangzhou, the United Cities and Local Government (UCLG) and the World Association of Major Metropolises (Metropolis). Its purpose is to encourage and promote urban governance innovation and sustainable development. The Guangzhou Award, today, is highly recognised and supported by the international community. After four successful cycles, it has evolved from an award to a global platform to foster and accelerate the local implementation of the Sustainable Development Goals (SDGs) and the New Urban Agenda.

Since 2020, the international social and economic landscape is undergoing profound change under the impact of the Covid-19 pandemic. Cities are an important hub for the prevention and control of the pandemic. The pandemic obliges us to rethink urban governance and to achieve progress that is people-oriented, comprehensive, coordinated. It obliges us to reexamine the systems and the capacities that underlie urban governance. It also makes us reconsider the relationship between human beings and nature. To achieve green recovery, we ought to actively implement the 2030 Agenda for Sustainable Development, build "a community of life for man and nature", and promote balanced economic, political, cultural, social and ecological development.

This report was carried out and completed during the pandemic. Through a systematic research of nearly 1,000 submissions accumulated from the first four cycles, the report delves into the value of the outstanding initiatives, depicts the opportunities and challenges faced by cities in each geographic region, shares the experience and lessons-learned from the urban innovation initiatives, and outlines the trends of global urban innovation. The report could not have been completed without the collaborative efforts of the experts and authors from different regions of the world or the innovative spirit of cities and local governments worldwide to achieve global goals. These efforts are especially meaningful during the pandemic because to conquer the pandemic and attain the global goals requires joint efforts and bold practices. A good starting point is sharing the knowledge, expertise and experience horizontally,

between cities and vertically between cities, their respective communities and policy makers at the national and international levels. This demonstrates the value of the Guangzhou Award in promoting the exchange of urban innovation and illustrates the concept of "community of common destiny for all mankind" embodied in the award.

Adhering to the founding vision of the Guangzhou Award, Guangzhou launched the 5th cycle of the award during the pandemic. Meanwhile, the city has deepened its communication and cooperation with the United Nations and other international organisations by submitting its SDG Voluntary Local Review, participating in the Green Cities Initiative of the Food and Agriculture Organization of the United Nations, and launching the World Bank's "sustainable urban cooling pilot project". In November 2020, Guangzhou successfully held the UCLG World Council Meeting 2020 and 13th Metropolis World Congress Guangzhou General Assembly and was elected as the President of Metropolis for the first time.

In the future, Guangzhou will continue to strengthen its coordination with the UCLG and the Metropolis and its collaboration with the international community to improve urban governance, promote openness and innovation, and enhance urban resilience. To put into practice the vision of "innovative, coordinated, green, open and inclusive development" and implement the 2030 Agenda for Sustainable Development, the city will develop its plan to peak its carbon emissions, explore effective methods for green and inclusive urban development, and strive for the path of sustainable development with Chinese characteristics as a contribution to the full attainment of the SDGs and to creating a better world.



Zhan Decun
Director General
Guangzhou Foreign Affairs Office

4 Cycle Review Countries



The analysis conducted for this report was clustered in view of lessons learned. The submissions for each of the first four cycles was conducted by grouping them into the following five geographic regions:

Asia-Pacific	Middle East and Africa	Europe	Latin America and the Caribbean	North America
Australia	Algeria	Austria	Argentina	Canada
Bangladesh	Benin	Belgium	Bolivia	United States of America
Cambodia	Burundi	Czech Republic	Brazil	
China	Cameroon	Denmark	Chile	
India	Democratic Republic of the Congo	Estonia	Colombia	
Indonesia	Egypt	Finland	Costa Rica	
Malaysia	Ethiopia	France	Ecuador	
Nepal	Ghana	Georgia	El Salvador	
New Zealand	Iran	Germany	Guatemala	
Pakistan	Israel	Greece	Honduras	
Philippines	Jordan	Hungary	Mexico	
Republic of Korea	Kenya	Ireland	Panama	
Singapore	Kuwait	Italy	Paraguay	
Sri Lanka	Lebanon	Kazakhstan	Peru	
Thailand	Liberia	Kyrgyzstan	Uruguay	
Viet Nam	Malawi	Lithuania	Venezuela	
	Nigeria	Netherlands		
	Saudi Arabia	Norway		
	Senegal	Poland		
	South Africa	Portugal		
	Palestine	Romania		
	Sudan	Russian Federation		
	Tanzania	Slovenia		
	Turkey	Spain		
	Uganda	Sweden		
	United Arab Emirates	Ukraine		
	Zambia	United Kingdom		

Executive Summary

BACKGROUND

The Guangzhou International Award for Urban Innovation (Guangzhou Award) was co-founded by the United Cities and Local Governments (UCLG), the World Association of the Major Metropolises (Metropolis) and the City of Guangzhou. It launched its first call for submissions in 2012. This was followed by calls for submissions in 2014, 2016 and 2018.

During the period 2012 to 2018, close to 1,000 initiatives were submitted for independent assessment, resulting in 180 deserving initiatives of which 60 were further assessed as shortlisted initiatives resulting in 20 award-winning initiatives.

While the Guangzhou Award provides recognition to cities and regions in the social, economic, governance, environmental and technological domains, the principle aim and objective of the award is to accelerate the exchange of knowledge, expertise and experience between cities and regions worldwide, and to mainstream lessons learned. The purpose of this four-cycle review of these initiatives was to look at what has emerged from this unique knowledge base developed since the inception of the award in 2012. The results of this analysis, conducted by experts, are presented in this report.

An analysis of submissions to the four cycles of the award (2012, 2014, 2016 and 2018) reveals stark similarities and also some significant differences in the way the different regions and cities approach urban challenges. However, what is common in all the submissions is the willingness to adopt innovative ways to address the problems facing urban communities in a world beset by climate change, environmental degradation, and increasing urban inequalities.

REGIONAL ANALYSIS

Asia-Pacific region

The Asia-Pacific region has a large and diverse population (4.3 billion, or 60 per cent of the world's population) and a geographical area that ranges from small island developing states, land-locked developing countries to developed countries. Half the population in the region lives in urban areas, which are home to a growing ageing population – the number of people aged

60 and above is projected to triple between 2010 and 2050 to 1.3 billion.

The region faces unique environmental threats – it contains 50 per cent of the world's most vulnerable cities and metropolitan regions. And despite significant progress in poverty reduction, the Asia-Pacific region still faces many challenges, including: shortage of adequate and affordable housing; infrastructure gaps; unhealthy environments, including air and water pollution; urban sprawl; crime and violence; and rising inequality. These challenges are further compounded by insufficient financial, technical and institutional capacity.

A key word analysis of the 280 submissions across the four Guangzhou Award cycles since 2012 shows that most of the submissions from the Asia-Pacific region were concerned with the following: waste management (20 submissions); capacity building (18 submissions); participatory planning (17 submissions); urban planning (15 submissions); and urban renewal, community empowerment, climate change, and sustainable city (12 submissions each).

Many opportunities and innovations in the region have been demonstrated by the Guangzhou Award submissions over the past four cycles. Instead of waiting for national action, cities and sometimes communities have initiated processes and actions to address pressing challenges. Different business models prevail, from the "government leads, enterprise operates" to a coordinated approach between public, private and community groups. In one case, participatory budgetary planning was adopted to engage and empower local communities in development planning. In other cases, where the government has not acted, communities have stepped forward and initiated action, shifting the development paradigm from inaction to "create from within and attract".

Urban regeneration is a trend in the more developed countries in the region, especially those with a lens on ecosystem conservation and more climate-friendly investment. This includes, for example, using green infrastructure to build climate resilience and redeveloping brownfield sites and infrastructure. One most innovative approach is the application of the notion of

“ecological environment first” and “let ecosystem become chief designer” to landfill regeneration.

An increasing number of cities have embraced technological innovations to help deliver a sustainable future, improve urban life and become smarter in urban management. Many of the solutions implemented by the cities demonstrate integrated, multi-pronged, multi-sectoral and multi-partner actions that seek to address local urban concerns and challenges holistically through a people-first lens.

Middle East and Africa

The Middle East and Africa region represents almost a fifth of the global population, and is characterised by a rapidly growing, youthful and urbanising population. The region also represents the world's largest concentration of natural resources (particularly minerals, water and forests). Despite this, the region is facing many serious challenges, including poverty, inequality and environmental risk. As such, the region has experienced periodic violence, civic instability, and conflict. The sum total of these serve to compromise the quality of governance institutions, development investment, accountability and monitoring. However, governance-strengthening issues are a significant focus of multilateral institutions in this region and there are frequent and resounding calls and initiatives to support improved governance.

Many of the countries in the region are only marginally visible in the innovation wave, and remedial issues (reconstruction and stabilisation) continue to be the focus for many countries, which may belie what appear to be more modern innovation fields.

There were a total of 66 submissions from Africa across the four Guangzhou Award cycles, emanating from 18 out of 54 countries on the continent. Over half (55%) of these submissions came from 5 countries: Nigeria, South Africa, Ethiopia, Kenya and Senegal. In the case of the Middle East, there were 201 submissions emanating from 9 of the 17 countries in the region. However, close to 90% of the applications come from just 3 countries: Turkey, Iran and Israel.

An assessment of the key words across these applications showed that most submissions from Africa focused on issues of sanitation infrastructure/sustainable sanitation, waste management, urban renewal, community empowerment and participation, and socio-economic activities. The Middle East submissions focused mainly on capacity building, issues of empowerment, women's and children's development, and urban planning/smart cities. There were synergies on issues of capacity building, empowerment and urban planning in the two regions.

Municipalities from the combined Middle East and Africa region have been a source of innovations on a wide range of challenges facing communities in these countries, including

very fundamental issues of basic infrastructure provision. Through innovations, such as the integrated solid waste management systems of Qalyubeya in Egypt, they begin to demonstrate how innovative solutions can address pressing challenges while stimulating economic activity in low-income contexts.

There were also interventions focused on economic growth and inclusion, such as the case of the eThekweni in South Africa where an innovative new upgrading model for informal settlements was developed, linking the improvement of living conditions of the urban poor with improved economic opportunities and dignity.

There is also evidence of adaptations of solutions from elsewhere to address local problems in ways that begin to create sustainable solutions to long-standing challenges, such as municipal financing, as in the case of Dakar's municipal bond. Other social innovations focused on addressing the kinds of issues facing vulnerable groups, such as women, children, and the disabled and ageing populations. Yet again, integrative solutions were evident, as in the Mezitli women's market in Turkey, where economic inclusion was used to address gender disparities.

Latin America and the Caribbean

For most of the 20th century, Latin America's cities were consumed by the need to manage successive waves of rural migrants, which challenged governmental capacity to service land and provide housing, security and employment at scale. The failure to provide affordable housing, education, and the conditions for ample and stable employment to large segments of the growing urban population across Latin America and the Caribbean resulted in extremely high levels of income inequality. Thus, in the first two decades of the 21st century, the region's urban challenges pivoted to issues of inclusion, equity, democratic governance, ecological sustainability and resilience.

Since 2012, the Guangzhou International Award for Urban Innovation has elicited 196 applications (approximately 22% of all applications) from across Latin America and the Caribbean. The top 20 key words during the four cycles of the award reflect the rise of issues and concerns over inclusion (community empowerment, citizen partnership) democratic governance (citizen involvement), and sustainability (alternative transport, climate change, ecological preservation), but also government performance (capacity building, government efficiency).

Significantly, the top five key words associated with the submissions from Latin America point to the region's focus on local government planning capacity, management and efficiency. This is arguably a response to the historically weak role that local governments played in urban development issues. The preoccupation with government performance can be seen clearly across the range of proposals from the region;

it is an element that helps explain why so many of the initiatives are innovative. The submissions demonstrated that innovation is not solely about novel topics or new technology, but also about focusing on new institutional configurations and practices that ensure that local government is responsive and able to follow through on its commitments.

In the late 20th century, the rise of local governments as central and innovative protagonists of human and economic development and environmental sustainability was not a phenomenon associated solely with the region's larger and more iconic cities like Buenos Aires, Rio de Janeiro, Mexico City, or even Porto Alegre. In all four cycles, but most notably in the 2016 and 2018 ones, initiatives from small municipalities earned mentions and spots on the shortlist.

The focus on improving government efficiency and capacity to attain larger ends, such as increased social inclusion or environmental protection, was evident in at least three (Buenos Aires, Rio de Janeiro, and Porto Alegre) of the seven shortlisted initiatives in the 2014 cycle. Moreover, the 2014 entries demonstrated local governments' embrace of old technologies, such as roundtable meetings, as well as new information technologies and big data as tools to project greater transparency and to improve coordination within and across city departments and utilities.

While most of the region's entries deserve praise for their creativity and concern for issues of equity and resilience across all the five sustainability domains (economic, social, governance, environmental and technology), the major lesson that comes out of a full review of the initiatives is the importance of local government capacity to plan and implement its policies and programmes.

North America

With over 80% of its population living in cities, North America (United States of America and Canada) is among the most urbanised regions of the world alongside Latin America and Europe. For most, if not all, of the two first decades of the 21st century, North American cities have largely enjoyed a renaissance. Twentieth century images of suburban flight, urban decline, crime and poverty have been replaced with images of revitalised urban centres, booming real estate sectors, and a return to urban parks and greenways. Equally important, the role of cities as key sites of cultural development, as well as innovation, to combat climate change and inequality has gained almost mainstream status.

The sense of excitement around North America's urban renaissance, however, was and continues to be tempered by the effects of the financial crisis of 2008, the current and yet to be fully understood impacts of the COVID-19 pandemic, an ageing population, as well as the unresolved tension between economic growth and climate change adaptation imperatives.

While the number of submissions from North America was relatively low compared to other regions, a review of the key words associated with the submissions highlights the range of issues and concerns with which cities grappled during the first two decades of this century. The key words range from concerns about the environment and cultural preservation to multiple manifestations of citizen engagement and involvement in urban processes. The environment and sustainable urban development also figured prominently in submissions from the USA and Canada over the course of the four cycles of the award.

Unlike in regions like Latin America, where the key word analysis provides insights into the degree of priority given to one or more issues, for the North American region, the key word analysis suggests something else. The appearance and clustering of key words, such as "inclusive communities", "cultural exchange", "citizen involvement", and "citizen participation" reflect the multiple complex ways that cities in North America see the place and role of citizens within larger processes of urban development and management. One could call this a "cultural turn" in local government in the USA and Canada.

The overarching lesson that emerges from a review of the submissions from North America is that prosperity and good urban fortunes do not necessarily correct or induce equitable and environmentally sustainable outcomes. Nonetheless, there is ample proof that there is the political will and the institutional capacity to develop and implement plans and civic programmes that leave no one behind. Local governments are proving that civic participation and engagement should and can include youth, women and the elderly. A more environmentally sustainable urban future is also possible. Cities can translate the complexities of the natural sciences, economic development goals, and emergent technologies into accessible, actionable plans.

Europe

Europe, particularly Western Europe, is the third most urbanised region of the world after North America and Latin America. Detailed information about urbanisation trends in Europe are encapsulated in data on the 27 European Union (EU) member states, which show that in 2016, cities hosted 59% of the EU's total population, accounted for 68% of the EU's gross domestic product (GDP) and provided 62% of the EU's employment. This means that 41% of the EU's population is non-urban and that specific policies are needed to address territorial imbalances.

Despite the economic recovery that has been taking place following the 2008-2009 global financial crisis, some territories in Europe are still struggling to catch up. Moreover, at the sub-national level, local and regional governments are still finding it difficult to recover the level of investment they had before the financial crisis, which is hindering their capacity to respond to

new challenges. These new challenges include mitigation of climate change, impacts of new technologies, rising social demands, such as the housing crisis, and adapting to an ageing population. A real challenge in the European region will be to keep social cohesion functioning in a balanced way.

In the last few years, international targets, such as the Sustainable Development Goals (SDGs) and the Paris Agreement, have spawned European commitments to address the world's most fundamental challenge: climate change. European legislation, in areas where the EU has shared legal competence, has continued to set new legal and policy benchmarks in order to not only achieve the Paris Agreement but go even further. The European Green Deal, adopted in 2019, aims to make Europe the world's first climate neutral continent by 2050 and to help EU citizens to produce, move, consume and live in a more environmentally responsible way while leaving no individual or region behind. One of the key actions of this policy is the new EU rule banning certain single-use plastics. Such policies will have huge ramifications on urban living in the EU's member states. Many European cities are already making it their political mission to de-carbon and green-up using their respective administrative and statutory powers. As a result, European cities are getting closer to achieving the target of 100% renewable energy use.

The review of submissions from Europe was based on submissions of the participating cities from Eurasia and Europe ("European Region") between 2012 and 2018. A total of 266 cases from 24 countries in Eurasia and Europe were included in the review, comprising a total of 43 qualifying candidate cities were assessed as deserving cities. Of these deserving cities, there were 8 shortlisted cities and 4 award winning cities.

Prior to this qualitative analysis, a quantitative analysis identified a list of main key words out of the 43 applications. From Eurasia, the following key words were identified: information system; childhood development; and government efficiency. From Europe, the following 5 key words were identified as most important: urban planning; smart city; inclusive communities; urban renewal; and energy efficiency.

The dominance of the key words "urban planning", "smart city", "inclusive communities", "urban renewal" and "energy efficiency" reflects quite precisely the current challenges and problems cities in Europe are facing. Many participating cities have been struggling with urban planning and balanced urban development over the last few years, which is demonstrated in the broad question of citizen involvement and participation. Over the past decade, social inclusion has increasingly become a key aspect in urban development in the European region. In an era of profound economic and social crises, citizens' involvement and participation have become tools for successful urban transformation and development.

Co-design and co-creation processes within the urban realm – e.g. product or service design processes that include citizens from the beginning to the end – is a real trend in the region and also visible globally. Innovative processes – either top-down or bottom-up – with clear potential for building on existing policies may play a central role in future urbanisation processes.

Despite the unstable economic environment of last two decades, urban innovation in Europe has been taking place, especially through diverse urban development products supported by co-funding instruments delivered by the European Union or federal states. Recent successful initiatives indicate a combined, multi-level leverage system of actions, which could be considered as a new trend in urban innovation.

Future trends

The Guangzhou International Award for Urban Innovation is a remarkable process of knowledge sharing on a global scale; the engagement of communities to engage in a close peer-to-peer process between city leaders has been implemented in the past eight years in an impressive way. Initiatives implemented on the ground have clearly shown benefits to all participating cities and urban communities. Since 2018, the Award has been aligned with the Global Agendas and an additional objective of the Award is to provide an evidence base for the local implementation of the Sustainable Development Goals and the New Urban Agenda.

Innovation implies change; and change does not always fall into the comfort zone of institutions. Mobilising inhabitants and stakeholders appears as a common and strategic tool to ensure co-ownership and broad-based buy-in for change. A key takeaway from the four cycles of the Guangzhou Award is that urban innovation often implies going beyond what is commonly called "public or community participation". It often involves new ways of engaging people and communities by providing them with tangible stakes in decision-making. This is notably the case with participatory budgeting where the inhabitants of a city get to decide how to spend a portion of the capital expenditure budget in return for respecting a certain number of "rules of the game" that are designed to ensure the success of participatory decision making. Social and economic inclusion will thus continue to remain key concerns of cities in the 21st century. Urban innovations will determine how these concerns are addressed.

The need for collaboration and cooperation within and between cities and regions will become even more important in the coming years as countries and regions grapple with the impending climate crisis and the public health and economic crises precipitated by the coronavirus pandemic. Furthermore, as inequality and unemployment levels rise as a result of the pandemic, there will be a greater need to build the resilience of urban communities

and implement policies that promote equity and inclusion, particularly among vulnerable groups, especially women and youth. Lack of trust in government institutions as a result of the pandemic and the impending climate crisis will motivate cities to develop innovative programmes regarding public health, mobility, climate resilience, poverty reduction and social justice.

In the next decade, cities will face intense and exacerbated climate challenges, putting citizens and infrastructure at risk. Considerable changes will occur simply because cities and communities have to deal with these challenges. Therefore, more urban innovation is expected to take place in the environmental realm.

Participatory local governance mechanisms and civic engagement have proved to be vital in ensuring the sustainability of projects aimed at improving the quality of urban life, as demonstrated by many of the winning and shortlisted entries in the four award cycles. The use of information and communication technology to solve urban problems (“smart cities”) has also emerged as a key feature in cities, particularly in the areas of service provision and economic development. Recent trends of co-design and co-creation processes within the

urban realm and innovative processes – either top-down or bottom-up – with clear potential for building on existing policies may play a central role in future urbanisation processes. As a trend, it can be said that local governments are increasingly using online platforms to include citizens in the urban governance process. Such e-participation could increase citizen engagement and promote the transparency and accountability of public services. It is expected that the Smart City concept will also develop further over the next decade. More innovation related to data management and increase of artificial intelligence (AI) will dominate urban innovation.

As urbanisation challenges evolve, and as more cities adopt innovations to address new and old challenges, the Guangzhou Award may also evolve towards ensuring even better processes in the submissions it receives, including more rigorous monitoring and evaluation, sustainable and stronger partnerships within and between cities and regions, transferability and scalability on a global scale, and a focus on capacity building and leadership development at the city level.



1

Urban Innovation: A Global Overview



1.1 Background

The Guangzhou International Award for Urban Innovation (Guangzhou Award) was co-founded by the United Cities and Local Governments (UCLG), the World Association of the Major Metropolises (Metropolis) and the City of Guangzhou. It launched its first call for submissions in 2012. During the period 2012 to 2018, close to 1,000 initiatives were submitted for independent assessment, resulting in 180 deserving initiatives, including 60 shortlisted initiatives and 20 award-winning initiatives.

While the Guangzhou Award provides recognition to cities and regions in the social, economic, governance, environmental and technological domains, the principle aim and objective of the award is to accelerate the exchange of knowledge, expertise and experience between cities and regions worldwide, and to mainstream lessons learned.

It is the conviction of the co-founders and co-sponsors of the Guangzhou Award that mutual learning needs to be greatly accelerated to enable cities and regions to meet the challenges of today and tomorrow. Waiting for ex-post evaluation

reports of best practices takes too long. For this reason, the Guangzhou Award was conceived from the very start as a learning and exchange platform where the main focus of the award is not just on recognition of innovation but on new ways of sharing, of learning and of decentralised forms of cooperation. This includes new methods and approaches to organising conferences, seminars, thought leadership workshops, study tours, exhibitions and digital platforms.

The purpose of this four-cycle review was to look at what has emerged from this unique knowledge base. The review asked a series of very simple questions:

- (i) What are the issues and challenges that cities and regions have tackled over the four cycles?
- (ii) How do these often original responses to long-standing problems correspond with the adoption and implementation of global agendas?
- (iii) What should be done to improve the system in terms of its effectiveness?
- (iv) What could be done going forward?



1.2 Methodology

The four-cycle review was not an ex-post evaluation. It comprised a retrospective and a forward-looking component. The retrospective part aimed to examine to what extent the focus and content of the urban innovation initiatives were responding to global and regional trends, issues and sustainable development agendas. The forward-looking part looked at how the wealth of knowledge, expertise and experience harvested by the Guangzhou Award and other like-minded initiatives could be localised and applied on a global scale.

The methodology consisted of two approaches. The first was a quantitative analysis of all of the submissions from the four cycles. This quantitative analysis looked at key words and domains both globally and by region.

The qualitative analysis looked at a more restrictive set of initiatives. This set comprised 15 shortlisted initiatives from each cycle (2012, 2014, 2016 and 2018). These were initiatives that underwent a thorough assessment process by an independent technical committee and were considered to be of comparable merit. It is this shortlist that was forwarded to an independent jury for the selection of the five award-winning initiatives from each cycle.

The qualitative analysis was undertaken by four experts. Each of these experts are urban practitioners, and are active in research, as well as in the transmission of skills and knowledge. They have also served in various capacities with the Guangzhou Award and are thus familiar with its process. Four of these experts were charged with looking at those shortlisted initiatives from a regional perspective.



1.3 Urban innovation: An evolving concept in a rapidly changing world

UCLG, Metropolis and the City of Guangzhou, the co-founders of the Guangzhou International Award for Urban Innovation, decided to establish the award as a means of accelerating the sharing and exchange of knowledge, expertise and experience derived from successful initiatives in making cities and regions more liveable and sustainable. From its inception, the award focused on sustainable urbanisation as circumscribed, at the time, by the Habitat Agenda (1996), the Millennium Development Goals (2000) and the outcomes of other major global conferences. Its thematic focus remains driven by the three pillars of sustainability as defined by the United Nations, namely, SOCIAL, ECONOMIC AND ENVIRONMENTAL, and two additional domains – those of TECHNOLOGY and GOVERNANCE.

Urban innovation has undergone rapid development as a concept since the founding of the Guangzhou International Award for Urban Innovation almost a decade ago. When UCLG, Metropolis and the City of Guangzhou first launched the idea of the Guangzhou International Award for Urban Innovation in late 2010, most literature equated the notion of urban innovation with the then rapidly developing and very popular concept of the “Smart City”. A synchronic literature review of the definition of a smart city could easily be described as:

- “An innovative city that uses technology to enhance its livability, workability and sustainability” (circa 2010)
- “Innovative cities are communities, activities, services, systems and people connected by technology to improve quality of life and preserve the planet’s resources.” (circa 2020)

These two “definitions” of what constitutes a smart city, derived from the review of literature barely a decade apart, mirrors in many ways the evolution of the concept of urban innovation and the challenges that are being addressed by the international community.

1.3.1 What is urban innovation?

Urban innovation has, to date, no universally accepted or agreed definition. Most literature refers to innovation as it is applied to industry

and commerce, management science and public administration, and the social, cultural and knowledge spheres. The key words that are most often used by thought leaders to describe innovation include: iterative and experimental; creative and flexible; exploitation of new ideas; new ways of doing old things; and thinking out of the box.

In the industrial and commercial fields, the key concepts that are often used to describe innovation include: new and improved products and production methods and practices; utilising spare capacity; balancing peaks and troughs in supply and demand; disruptive value propositions for bringing new products to new customers in new markets; and enhancing customer satisfaction.

In the management science and public administration space, innovation is often equated with interconnectedness, systemic approaches, prioritisation, and horizontal and cross-departmental problem solving. A key outcome is the perceived need to break down departmental and jurisdictional silos.

In the social, cultural and knowledge spheres, the words most often used to describe innovation include: responding to core values; evidence-based policy making; developing people-oriented places and organisations; constant evaluation and feedback loops (learning); and participatory and anticipatory actions.

These different approaches to innovation share several common threads. They are people-centred – be it the “customer”, the “stakeholder” or the “citizen”. They are forward-looking and try to anticipate problems rather than just reacting ex-post facto. They are also strongly linked to the more effective and efficient use of human, technical and financial resources.

What is clear is that the complexity of cities and regions and the multitude of social, economic and environmental challenges that are facing an urbanising world require a multi-pronged approach to urban innovation.

The Guangzhou Award, inspired by the above spheres of thinking, stipulates that urban innovation comprises one or more of the following:

- (i) new policies
- (ii) new implementation strategies
- (iii) new business models, including financing options
- (iv) new forms of partnerships, engagement and collaboration
- (v) new approaches to governance, and
- (vi) harnessing technology

1.3.2 Does size matter?

The Guangzhou Award has shown that urban innovation is spawned in and by cities, regions and communities of all sizes and in very different social, economic and political contexts. Four cycles of the Guangzhou International Award for Urban Innovation, spanning almost a decade, have shown that urban innovation is first and foremost a response to necessity at the local level. The response can be driven from the top tiers of local decision- and policy-making as much as it can be driven from the community and the grassroots. Often it is a combination of the two as long-standing problems and issues begin to influence public awareness and test public patience and tolerance for inaction.

Table 1.1 Size of shortlisted cities and regions and developed/developing country split

Size of shortlisted cities and regions

Mega city/region (5 million +):	8
Metropolis (1.5-5 million):	14
Large (500k - 1 M):	17
Medium (250k-500k):	9
Small (<250k):	9

Developed/developing country split

Developing country:	34
Developed country:	23

Note: Theoretically, there are 60 shortlisted cities: However, three cities made it to the shortlist twice each.

All buses in Guangzhou, China will be powered by electricity. The move is part of efforts by Chinese cities to reduce carbon dioxide emissions and fight air pollution.

The media and civil society advocacy have often played a critical role, not just in advocating for global challenges such as climate change, but also in the numerous daily and recurrent issues of local air and water quality, congestion and the corresponding loss of productivity, perceptions of poor security and safety, and the negative impact on health and well-being. These daily challenges facing almost all inhabitants of an urban conglomeration have compelled many local authorities to take the bull by the horns and initiate far-reaching changes on how decisions are made, how resources are allocated and, increasingly, to seek synergies across departmental jurisdictional boundaries to make significant improvements to public administration, the management of urban affairs and the governance of development. Several of the case studies presented in this report have succeeded in adjusting their governance structures to bring about much needed change.

A key component of urban innovation often resides in the engagement of a wide range of human, technical and financial resources. In some cases, we have seen cities and regions engage multiple social actors and stakeholders by leveraging their respective resources to bring about significant change. The driving force is often a compelling vision or mission that few can disagree with. A case in point can be found in the host city of the award – the City of Guangzhou – which changed its entire bus fleet of 11,000 buses to become fully electric within one year. In other instances, cities and regions have resorted to using low-cost, low-capital methods in highly creative ways to substantially change societal attitudes and human behaviour that often constitute the root causes of the problems and challenges facing any given community.

Innovation implies change; and change does not always fall into the comfort zone of institutions. Mobilising inhabitants and stakeholders appears as a common and strategic tool to ensure co-ownership and broad-based buy-in for change. This is notably the case with participatory budgeting where the inhabitants of a city get to decide how to spend a portion of the capital expenditure budget in return for respecting a certain number of "rules of the game" that are designed to ensure the success of participatory decision making.



1.4 Dominant domains over the four cycles

A quantitative analysis of all of the submissions since 2012 consistently shows the priority accorded to social, governance and environmental issues, in that order. Cumulatively, social issues come first, with governance and environmental issues coming a close second and third. Economic issues come fourth, with technology issues coming in fifth position. This pattern is consistent within each cycle as well.

This pattern also corresponds, to a large extent, to what local governments are mandated to do. In many parts of the world, the mandate of local authorities is largely limited to providing basic social and environmental services as they pertain to waste management, and only rarely include an explicit mandate for, for example, economic development.

This trend could also be seen as consistent with the global agendas at the time. The 2012 and 2014 cycles corresponded, at the time, to the height of global efforts to implement the Millennium Development Goals (MDGs) by 2015. Six of the eight MDGs clearly fell within the social domain, with one environmental goal and one governance goal (partnerships)¹. The 2016 and 2018 cycles, on the other hand, corresponded with the adoption in late 2015 of the Paris Declaration on Climate Change and the transition from the MDGs to the Sustainable Development Goals (SDGs).

¹ The eight Millennium Development Goals were: 1. Eradicate extreme poverty and hunger; 2. Achieve universal primary education; 3. Promote gender equality and empower women; 4. Reduce child mortality; 5. Improve maternal health; 6. Combat HIV/AIDS, malaria, and other diseases; 7. Ensure environmental sustainability; and 8. Develop a global partnership for development

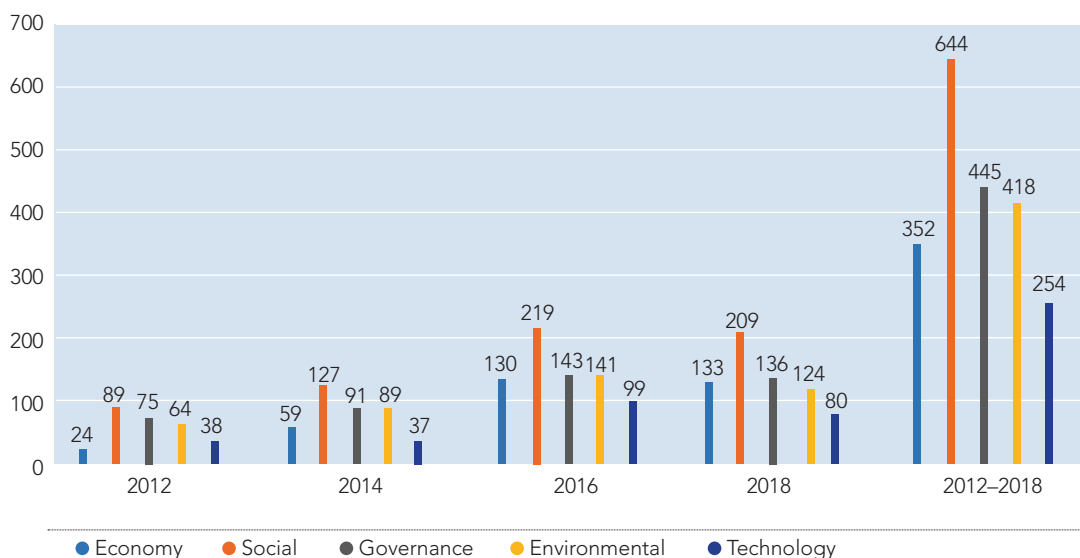


Figure 1.1: Domains in the four cycles (2012-2018, including cumulative)

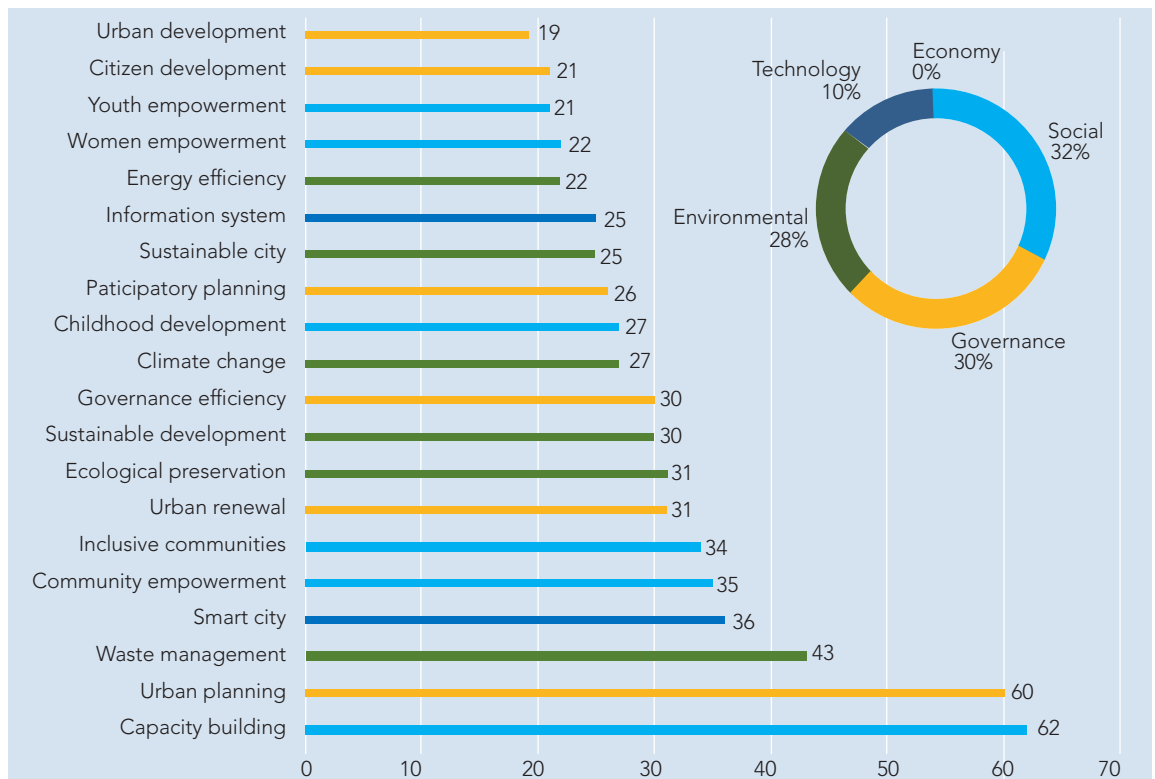
1.5 Key word analysis



The analysis of key words in the four cycles are very revealing and also mirror, to a large extent, the key domains. As illustrated in the figure below, overall, the issues that top the list of actions undertaken by cities and regions are first and foremost capacity building and urban

planning, followed by waste management, smart city, community empowerment and inclusive communities. Governance issues come in first place, closely followed by social and economic issues. Following is an analysis of key words in each of the four cycles.

Figure 1.2: Top 20 key words in the four cycles of the Guangzhou Award



1.5.1 2012 cycle

In 2012, the top key word was “smart city”, followed closely by “urban planning”, “citizen involvement”, “capacity building” and “partnerships”. As mentioned above, this reflected a trend and an interpretation of urban innovation that was influenced by an aggressive marketing campaign on behalf of technology companies and a corresponding plethora of smart city applications. Most of these applications proposed the use of big data analytics to help cities identify new ways

and means of solving old problems. The business model of these smart city approaches demanded the optimisation of infrastructure and resources, with an initial focus on large-scale and costly public services, such as transport, waste management, and energy.

Bristol in the U.K. was one of the first “smart city” initiatives to be recognised by the Guangzhou Award in 2012. Its uniqueness, at the time, was that it was people- and community-centred rather than technology-led.

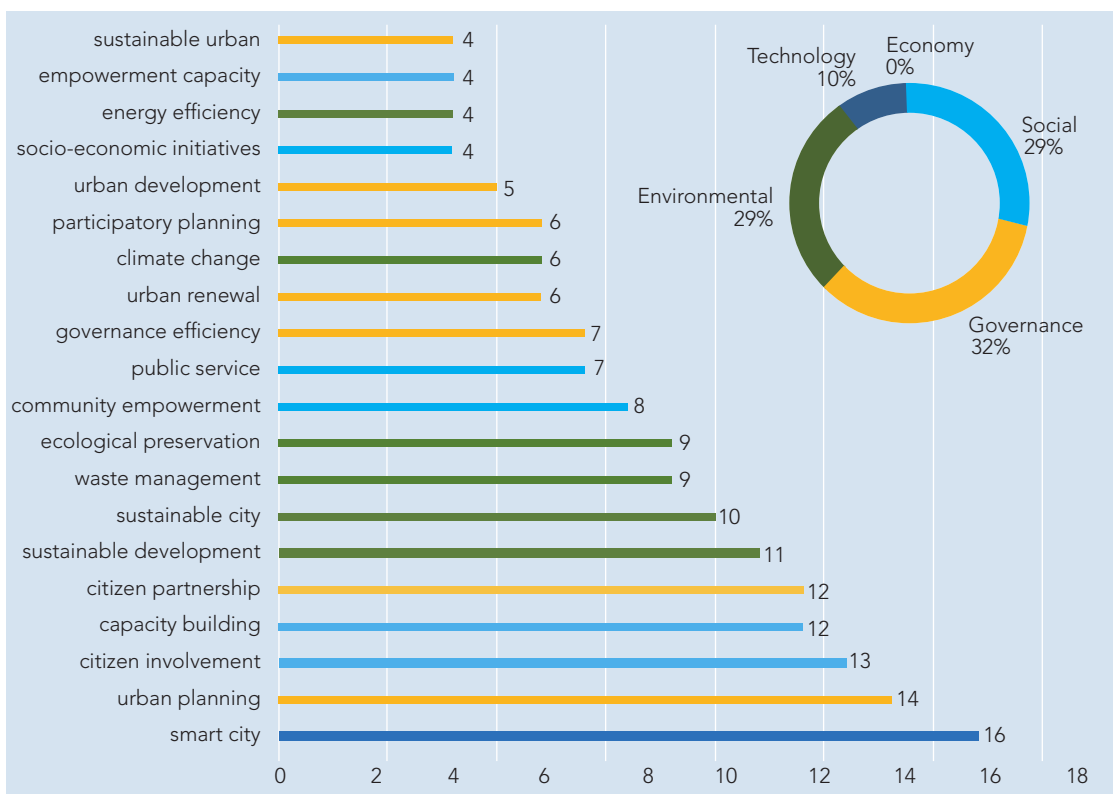


Bristol is one of four cities in the UK currently testing driverless cars

Bristol Smart City

Bristol’s innovative approach to becoming a smart city is based on people and not on technology: a public-private-people approach. It has two primary aims: (i) to contribute to the reduction of Bristol’s CO₂ emissions of 40% by 2020 from a 2005 baseline; and (ii) to use projects to ensure that sustainability is placed at the heart of community concerns and ensure that sustainability becomes an integral way of improving individual’s lives. Projects to date include smart metering, open data and smart grid and electric vehicles that build on the city’s strengths in micro-electronic and digital companies. Citizen participation is prioritised through a living laboratory and extensive media and digital communications. Future projects include a Bristol Prize for new clean technology and a Grass Roots Catalyst Fund to incubate and develop sustainable urban living initiatives that can be scaled up and applied to cities at home and abroad.

Figure 1.3: 2012 – Top key words in five domains



1.5.2 2014 cycle

Smart city approaches, which featured prominently in the 2012 submissions, took a less prominent position in 2014 whilst social issues, namely inclusive communities and community empowerment, as well as environmental issues, emerged strongly. Environmental issues, including waste management, climate resilience, and transport, with the latter including transport

systems, transport efficiency, bus rapid transit and alternative transport, took the lead in 2014. Governance-related issues, including planning and capacity building, remained high on the list of priorities.

One example from 2104 that bridges several domains, including governance and the environment, is an initiative by the City of Hamburg.

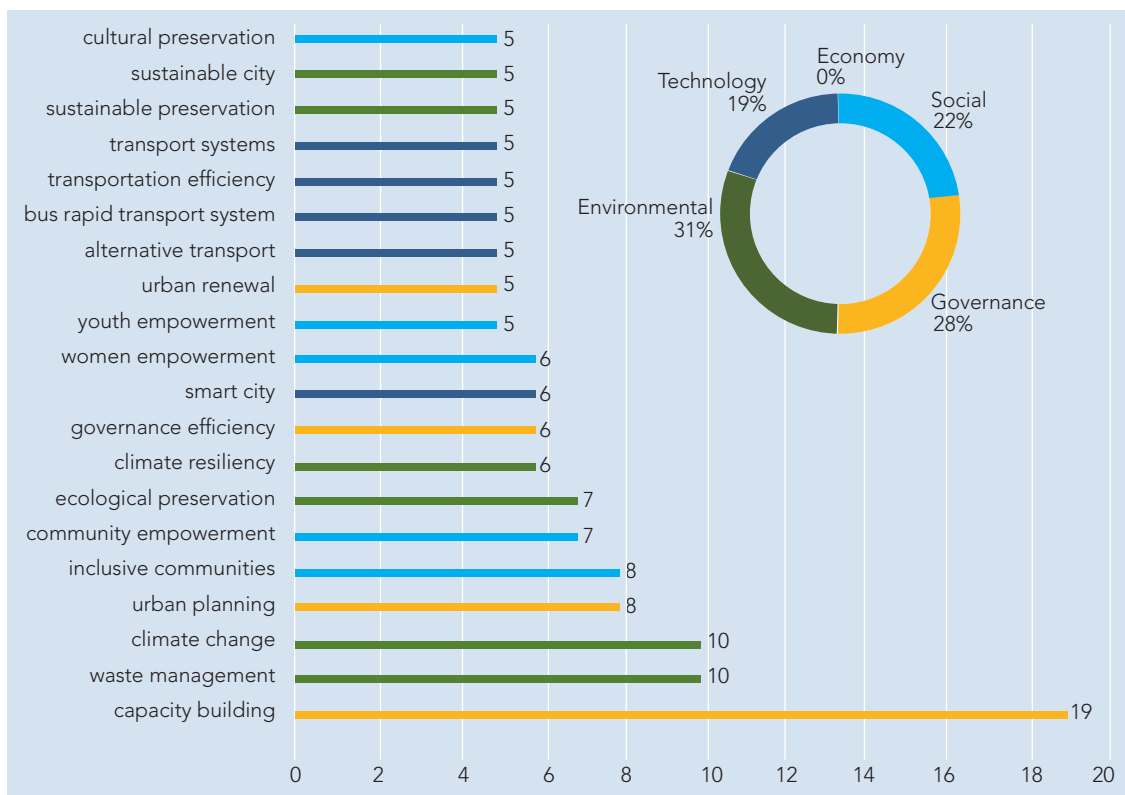
Hamburg: Socially inclusive zero carbon neighbourhood transformation

In 2005, the German city of Hamburg decided to support the redevelopment of the Wilhelmsburg neighbourhood of the city by hosting the International Building and the International Garden Show (IBA). An "IBA Partnership", which brought together 150 private companies and the local community, was established. As a result, over 70 projects were developed around 3 themes, including cities and climate change.

Wilhelmsburg has 55,000 inhabitants living in an island on the Elbe that is vulnerable to flooding. It is also an ethnically diverse and low-income community with an environment affected by industrial and transport infrastructure. The projects are based on maximising the use of local energy resources, such as energy savings and energy efficiency, thereby strengthening the local economy. The aim is 100% local renewable energy supply by 2025 and 100% renewable heat by 2050, which will eventually make the Elbe islands carbon neutral.

The IBA provided an opportunity and structure to further the scheme. Already scheduled projects would ensure that 54% of heat production and 14% of the overall energy demand would be renewably produced by the end of 2015. The IBA Hamburg Model and the Climate Protection Renewable Wilhelmsburg's strategy are already being used in other parts of the city. Additionally, the IBA is sharing the knowledge generated with other partner cities.

Figure 1.4: 2014 – Top key words in five domains



1.5.3 2016 cycle

By 2016, social issues re-emerge in the pole position, followed closely by governance (inclusive of planning) and environmental issues. The social issues are also wide ranging and include cultural preservation, community-based development, community empowerment, women's empowerment and childhood development.

An initiative that stood out for its creativity in 2016 is the still ongoing initiative of the Zebras of La Paz in Bolivia where youth at risk have been mobilised to become champions of change in people's attitudes and behavior.



Credit: Isabel Baker

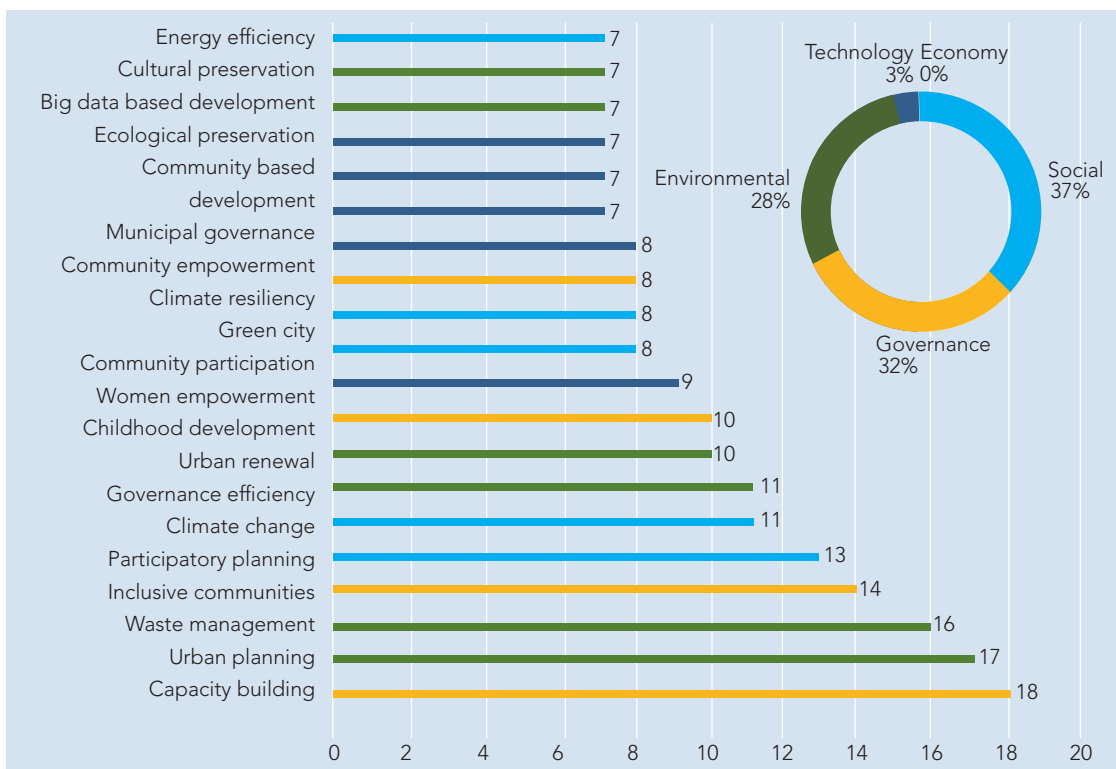
The Zebras of La Paz

The La Paz Zebra initiative is a very successful undertaking aimed at actively involving highly vulnerable youth in a citizen education programme. Youth at risk are trained to become "civic educators" and are paid a minimum wage disguise themselves and role-act as zebras (in reference to zebra crossings). The aim is to change both driver and pedestrian behaviour and to encourage both groups to obey traffic signs and rules. The outcome is both changing people's behaviour resulting in less traffic congestion and accidents and providing youth at risk with a unique opportunity to become active and responsible citizens. The impact of this initiative has been mostly local but is now spreading to other cities across Bolivia, as well as to other countries in Latin America. The transformational nature of this initiative lies in its friendly and comic dimension and the innovative manner of engaging and integrating youth at risk. Youth are given a meaningful role in society, one which both empowers them and provides them with respect and dignity. As a result, many of the youth participating in this initiative have continued their education and found decent jobs; a few have pursued higher education. Today, the Zebras of La Paz are helping schools reduce bullying and to bring joy and comfort to hospitalised patients.

Source: Report of the Technical Committee, 2016 Guangzhou International Award for Urban Innovation

The Zebras of La Paz have become true urban educators on road safety

Figure 1.5: 2016 – Top key words in five domains





FINA World Championship opening ceremony, Kazan, Russia

1.5.4 2018 cycle

In 2018, the Guangzhou Award was explicitly linked and aligned with the Sustainable Development Goals (SDGs) and the New Urban Agenda. All the shortlisted initiatives demonstrated a clear understanding of the goals and principles of these global agendas. All of the shortlisted initiatives address several SDGs simultaneously, underscoring the inter-linkages between the goals.

Urban planning and capacity building continued to dominate the key words that characterised the urban innovation submissions. Social and governance issues remained top priorities, with environmental issues coming a close third. Energy efficiency appeared for the first time, with submissions from both developed and developing countries.

Figure 1.6: 2018 – Top key words in five domains



1.6 Some concluding observations

The global overview of the Guangzhou Award shows a strong correlation between the global agendas and the perceived priorities of cities and regions. As mentioned previously, the first cycle of the award in 2012 saw many submissions dealing with smart city approaches and technology. Both these key words faded in later cycles and were replaced in 2016 and in 2018 by key words that corresponded to social and environmental domains.

Two other key words are very prominent throughout the four cycles, and are taking on increasing importance with each cycle. These are: capacity building and planning.

Capacity building, can be seen in this context as a condition *sin qua non* to innovation, and urban planning as the first step towards implementation. One area that does not appear significantly in this analysis is economic development. Indeed,

economic development is rarely an explicit mandate of local government, especially at the municipal level. However, a closer look at the shortlisted initiatives reveals that many of them deal with economic opportunities indirectly, most notably by creating the necessary facilities or infrastructure for people, especially women, to access markets and income-generating opportunities. This is notable in the case of the Women Producers Market in Mezitli, Turkey, where women have had few opportunities to be financially independent.

A key takeaway from the four cycles of the Guangzhou Award is that urban innovation often implies going beyond what is commonly called “public or community participation”. It often involves new ways of engaging people and communities by providing them with tangible stakes in decision-making.



Capacity-building and the SDGs

Capacity-building is defined as the “process of developing and strengthening the skills, instincts, abilities, processes and resources that organisations and communities need to survive, adapt, and thrive in a fast-changing world.” An essential ingredient in capacity-building is transformation that is generated and sustained over time from within; transformation of this kind goes beyond performing tasks to changing mindsets and attitudes.

<https://academicimpact.un.org/content/capacity-building>

2 ASIA-PACIFIC REGION

The Asia-Pacific region is made up of 4 sub-regions and 38 countries: South and South-western Asia (7 countries), South-eastern Asia (13 countries), East and North-eastern Asia (4 countries) and the Pacific (14 countries). It has a large and diverse population (4.3 billion, or 60 per cent of the world's population) and a geographical area that ranges from small island developing states, land-locked developing countries to developed countries. Many

countries in the region are experiencing rapid urbanisation (50 per cent live in urban areas that are growing at a much faster rate than the rest of the developing world), an ageing population (the number of people aged 60 and above are projected to triple between 2010 and 2050 to 1.3 billion) and environmental threats (the region contains 50 per cent of the world's most vulnerable cities and metropolitan regions).

2.1 Regional trends

The United Nations has identified five broad trends that will influence the region's development and progress towards the Sustainable Development Goals (SDGs):

- **Urbanisation** – from urban and territorial planning and informality in housing and work to the provision of sustainable infrastructure in cities. Considering the speed and scope of urbanisation in this vast region, including the world's largest concentration of urban slum populations (an estimated 250 million), the ability of Asia-Pacific cities and metropolitan regions to foster more sustainable development will affect the world's sustainable development prospects;
- **Demographic change** – from marginalisation and urban segregation to the promotion of socio-economic equality and inclusive cities;
- **Climate change** – from uneven climate change impacts to the implementation of climate-sensitive action and cross-cutting partnerships to achieve climate neutrality and improve resilience and quality of life in urban areas;
- **Protracted crises** – from conflicts and disasters (e.g. floods, drought, biodiversity loss) to incorporating conflict and disaster prevention, including crisis management, conflict resolution and disaster risk reduction strategies for the most vulnerable; and
- **Frontier technologies** – from business-as-usual to becoming smarter cities with new and emerging technologies and innovations.



Green Square -
Have Your Say
Consultation, Sydney,
Australia

Credit: Michael Kaercher

2.2 Challenges

Despite progress in poverty reduction, the region still faces many challenges, including:

- Shortage of adequate and affordable housing, including legal security of tenure and accessibility;
- Infrastructure gaps;
- Unhealthy environments (e.g. air and waste pollution), urban sprawl, crime and violence (especially against women);
- Rising inequality, which disproportionately affects the vulnerable populations of the poor, women, youth, older adults and people with disabilities, among others;
- Insufficient financial, technical and human resource for sustainable urban development; and
- Lack of institutional capacity to respond to the magnitude of interrelated urban challenges, to foster territorial development,

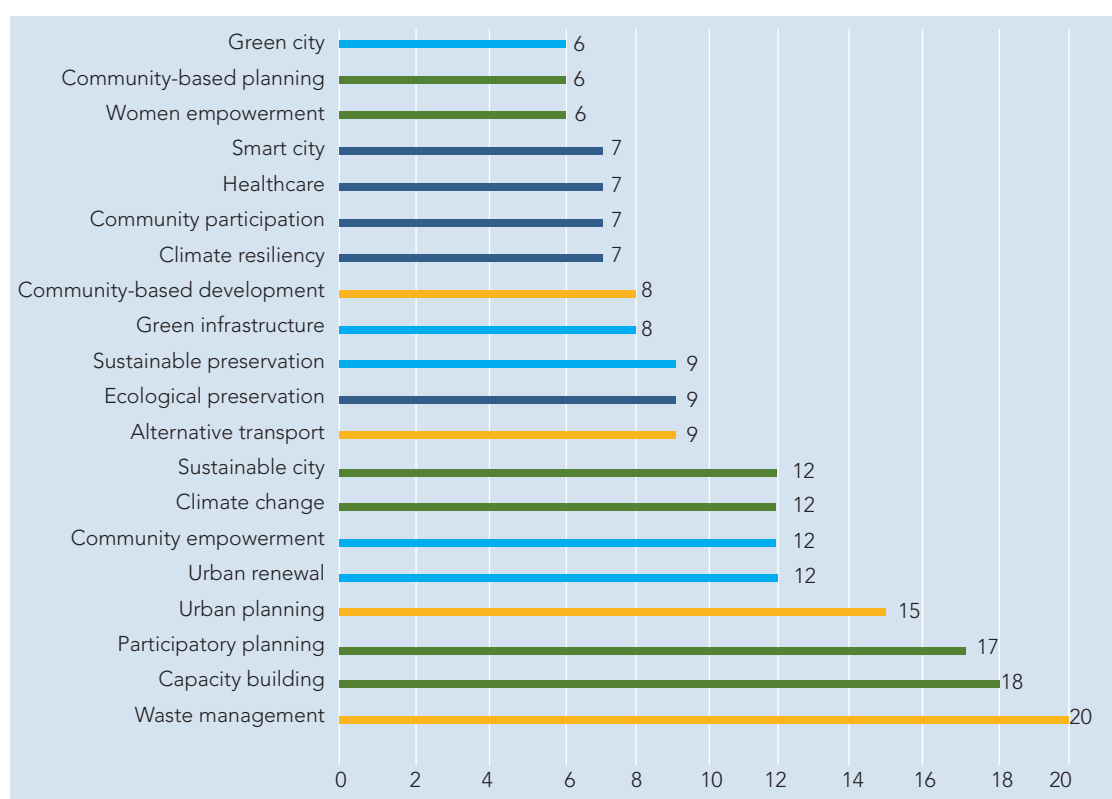
and to manage the environment and growing metropolitan areas, mega-cities and mega-regions.

As revealed by the key word analysis of the 280 submissions across the four Guangzhou Awards cycles since 2012, most of the submissions from the Asia-Pacific region are concerned with the following:

- Waste management (20 submissions);
- Capacity building (18 submissions);
- Participatory planning (17 submissions);
- Urban planning (15 submissions); and
- Urban renewal, community empowerment, climate change, sustainable city (12 submissions each).

The prevalence of these key words in the submissions reflects the region's rapid urbanisation and the resultant changing demographics and conditions. Key words, such as urban planning and urban renewal, suggest

Figure 2.1: Issues addressed in submissions from the Asia-Pacific region



that many submissions recognise and are seeking to address challenges arising from rapid urban growth. At the same time, many submissions are concerned with waste management and capacity building, reflecting the infrastructure gaps and lack of institutional capacity that many of the developing countries in the region have experienced as a result of rapid urbanisation. The changing demographics of the region, together with growing recognition of the need for greater socio-economic equality and inclusiveness, is also apparent in the prevalence of key words such as participatory planning and community empowerment. This is further supported by the identification of key issues, such as community empowerment, community-based and women's empowerment amongst the top 20 key words identified in the region.

The presence of key words such as climate change and sustainable city in the above list (as well as issues such as green infrastructure, ecological preservation and green city appearing amongst the top 20 most used key words) suggest that many cities in the region are also concerned with the impact of climate change and the need for climate-sensitive action and environmental improvement amidst rapid urbanisation. The growing trend towards the availability and utilisation of emerging technologies in development can be seen through the prevalence of "smart city" as among the top 20 key words in the region.

An analysis of the submissions following categorisation under the five sustainability domains – economic, social, governance, environmental and technological – shows that the majority of

the submissions could be categorised under the social domain, followed by governance and environmental domains (Figure 2.2). Also notable is a significant increase in the number of submissions categorised under the economic domain following the first cycle of the Guangzhou Awards. The submissions under the social domain suggest a focus on addressing social issues such as inequality and marginalisation that have arisen from urbanisation and changing demographics.

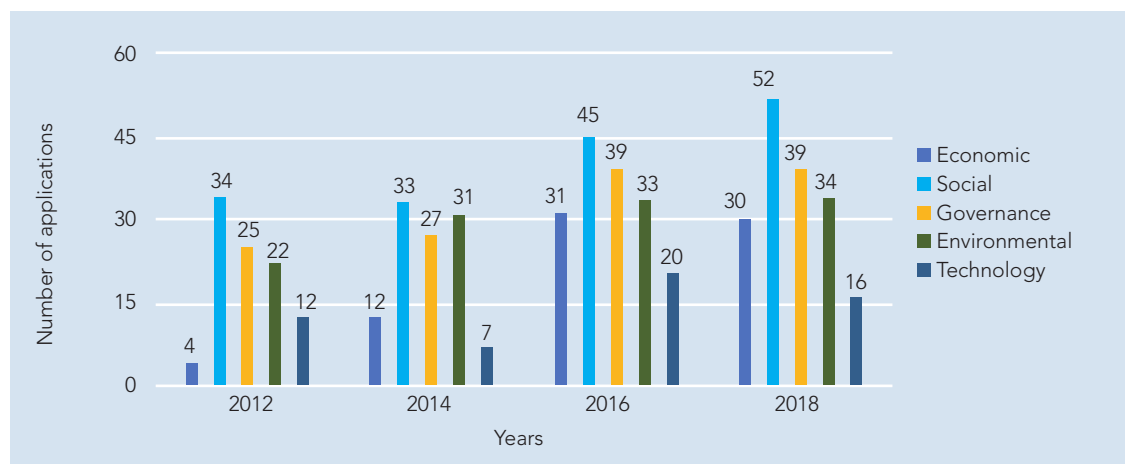
Further, the prevalence of submissions falling under the social, governance and environmental domains is in line with the results of the preceding key word analysis. This categorisation shows the influence of urbanisation and demographic changes on the region's approach towards achieving the SDGs and is indicative of the major developmental challenges still facing the region, such as shortages of adequate and affordable housing and infrastructure, unhealthy or polluted environments, and rising inequality and marginalisation.

Most shortlisted cities from the Asia-Pacific region speak to the local consequences of rapid urbanisation (e.g. inadequate housing, pollution, and deteriorating environment), which are often compounded and intertwined with other wider issues such as climate change and economic development (Annex A). The development space and scale of their solutions differ, ranging from the city level to neighbourhoods and specific projects. The solutions and innovations of these cities in addressing urban concerns and challenges are reviewed next.

Table 2.1: Top 5 thematic issues in the regions

	AFRICA	ASIA-PACIFIC	EURASIA	MIDDLE EAST & WEST ASIA	LATIN AMERICA & THE CARIBBEAN	NORTH AMERICA
Urban planning	0	15	3	10	11	4
Smart city	0	7	0	11	0	2
Inclusive communities	0	0	0	9	7	3
Urban renewal	6	12	0	0	5	0
Energy efficiency	0	0	0	7	0	3

Figure 2.2: Domains according to cycle years (2012-2018)



2.3 Opportunities and innovations

Many opportunities and innovations in the region have been demonstrated by the Guangzhou Award submissions over the past four cycles from 2012. Instead of waiting for national action, cities and sometimes communities have initiated processes and actions to address pressing challenges, make the most of urbanisation and improve urban living. For example, the Pluit Reservoir Revitalisation Project in Jakarta illustrates how, with rapid urbanisation, waterways and ecosystems became polluted, resulting in flooding, while squatter settlements mushroomed on banks in the absence of adequate housing.

The city took on these challenges and reworked them to opportunities, regenerating and revitalising the polluted water bodies into blue and green resources with new housing and services for the squatter population. Central to the transformation is strong leadership and commitment as well as partnership with both private and community-based sectors in a holistic reservoir revitalisation project that addresses environmental (water management and flooding), social (housing and quality of life) and economic (job opportunities) issues.



Pluit Reservoir Revitalisation Project, Jakarta

Jakarta, Indonesia capital, which lies in a delta of 13 rivers with 40 per cent of land below sea level, faces a huge crisis of flooding, algae and water pollution. The Pluit Reservoir Revitalisation Project represents the city's effort to improve water storage capacity, reduce urban flooding and improve the quality of its prime water source. The project required improving storage capacity, relocating 3,000 squatters around the reservoir's banks, and transforming the area into parks and quality public open space. The city's water management plan, envisioned for implementation to 2030, is seen as a way to address climate change in a socially conscious way. It includes government partnerships with corporate and community sectors in new and less threatening property development.

Source: Report of the Technical Committee 2014, Guangzhou International Award for Urban Innovation

We see this transformation in not just big or capital cities. Smaller cities like Chiang Rai in Thailand are also addressing rapid urbanisation challenges and innovating to improve the urban ecosystem and biodiversity conservation towards sustainable city and climate change resilience. The approach is holistic and integrated, not unidirectional or hierarchical and where biodiversity preservation is connected with local economic development (providing jobs and income to the local population) and with disaster preparedness (addressing climate change and other crises), thus demonstrating that a liveable and sustainable city enhances human, social and environmental well-being with the participation of all sectors (Annex A).

Green infrastructure, including open spaces, urban forests and water-sensitive urban design, is critical to climate change mitigation and provides multiple benefits for society and the city. Green areas not only act as carbon sinks and protect biodiversity, but also provide recreational opportunity. Different approaches have been developed, depending on context and needs. Ideas and strategies may be borrowed and inter-referenced from global practices and adapted and applied to local problems. Many of the submissions from the region were local innovations, either in terms of strategies, partnerships, business models and policies, or a combination of these.



Credit: Natthawut Utsawachaihot

View of
Chiang Rai
City, Thailand

Chiang Rai: Linking biodiversity preservation with local economic development and disaster preparedness

Started in 2008, this initiative represents a major shift in the way the City of Chiang Rai in Thailand is meeting the challenges of rapid urbanisation and climate change. On the policy front, the initiative is a departure from past policy that focused primarily on making the city an economic gateway for the Mekong, which led to rapid urban growth and environmental deterioration. The new vision of the mayor was for a “liveable city focusing on good environment, in conformity with the Buddhist way, and well-being of the people.”

Seven development strategies have been formulated to attain this vision, including a highly original and integrated approach to climate change mitigation and adaptation that links biodiversity preservation with local economic development with disaster preparedness. An equally significant change has been brought about in the role of the city from that of a “doer” to a “facilitator” that involves the active engagement of citizens and local stakeholders to forge a strong sense of ownership and sustainability in the project’s implementation.

The initiative has so far resulted in the demarcation of forests, lakes and rivers as conservation zones, in the gaining of new knowledge about local biodiversity, in improved and expanded green spaces, and overall improvement of the quality of life. These actions and improvements have boosted tourism and tourism revenue, spawned new educational programmes for school children and youth, and strengthened community relationships that have significantly reduced conflicts and social tensions. Many cities have already visited Chiang Rai to learn from its experience.

Source: Report of the Technical Committee, 2012 Guangzhou International Award for Urban Innovation



Process of weaving rattan in a furniture factory Surabaya, Surabaya City, East Java, Indonesia

In South Korea, an incentive scheme utilising the Carbon Bank system (carbon points) has been introduced to encourage participating households to voluntarily reduce their energy, gas and water consumption and contribute towards greenhouse gas (GHG) emission reduction. In Surabaya, Indonesia, a policy supporting simple and practical circular

economy practice of dealing with waste in an environmentally-friendly way is being implemented so that it may be viewed as a resource rather than waste e.g. by allowing residents to pay for their bus fare using empty plastic bottles and selling their waste to a waste bank for use as raw material for making products and handicrafts that create job opportunities.

GHG emission reduction in Gwangju, South Korea

Can a government-initiated programme to spark voluntary carbon-saving steps by citizens actually generate significant returns? Gwangju's Carbon Bank system indicates a strong "yes". Initiated in 2009, it has expanded participation by some 330,000 households, representing 1.5 million Gwangju citizens or 62 per cent of the city's population. While the city paid for the educational and operating costs, a Green Star Network was responsible for implementing the education and promotion activities. Greenhouse gas emissions have decreased each year, most recently by 135,000 tonnes.

Source: Report of the Technical Committee, 2014 Guangzhou International Award for Urban Innovation



On a larger scale, one most innovative approach is the application of the notion of “ecological environment first” and “let ecosystem become chief designer” to landfill regeneration. This initiative in Wuhan, China, connected pollution sources (landfills and waterways) and harnessed technology (largest application of aerobic technology for landfill remediation) to transform one of the biggest landfills in China and Asia into a recreational park, wetlands and an ecological

garden (a total of 170 square kilometres) to improve the quality of the local environment and life. The initiative implemented a collaborative governance framework involving multiple government departments, communities and experts from 82 cities in China and globally. The innovations embodied in the Wuhan landfill rehabilitation initiative offers inspiration and lessons to other Chinese and Asian cities.



<http://www.guangzhouaward.org>

Transformation of the abandoned Jinkou Landfill into one of Wuhan's most charming recreational parks. The dyke also has become an urban forest park, a beloved place for pedestrians and cyclists.

Wuhan: The “rebirth” of an urban waste dump

The Chinese city of Wuhan has a population of 10,890,000, a land area of 8,569 square kilometres and a population density of 78,787/sq. km. This innovation transformed one of the largest landfills in Asia, the Jinkou landfill in Wuhan, to be the most charming recreational park and ecological garden. The restoration of Jinkou landfill and polluted Zhanggong dyke solved the ecological and urban problems that have troubled Wuhan for decades. It created a 50.5-km long ecological belt, covering an area of over 170 sq. km. This reduces pollution and links up the once polluted Zhanggong dyke to provide an urban forest park for pedestrians and cyclists. Part of the site was used for the China International Garden Expo in 2015-2016.

This initiative has made the 14 adjacent communities and lives of 400,000 people more liveable. It involves government departments as well as experts from 82 Chinese cities and 12 countries. This is the largest application of aerobiotic technology for landfill remediation and the biggest ecological bridge in China. It also uses an innovative way of crowd sourcing to raise funds in addition to the traditional way of funding the initiative. It reduces inequalities and promotes social cohesion of nearby citizens by drastically improving their living environment. People have been mobilised to participate in the initiative. Other cities can learn from this initiative on how to turn and link polluted landfills and waterways into parks and pedestrian walkways and bicycle lanes, turning a “grey belt” into a “green belt” to improve the quality of life in a city.

Source: Report of the Technical Committee, 2018 Guangzhou International Award for Urban Innovation

Urban regeneration is also a trend in the more developed countries, especially those with a lens on ecosystem conservation and more climate-friendly investment. This includes, for example, using green infrastructure to build climate resilience and redeveloping brownfield sites and infrastructure. In Sydney, Australia, obsolete buildings and underutilised infrastructure in former industrial areas are re-planned and reused to deliver transit-oriented, high-density living that is more economical and with a minimal environmental footprint. The

city has implemented a package of innovative funding mechanisms to create partnerships with private developers to deliver infrastructure. Through value capture schemes and levies, the private sector contributes 79 per cent of total infrastructure costs. The remaining 21 per cent is funded by the city (two-thirds) and the federal and state governments (one-third). Rapid urbanisation and climate change have combined to underscore the importance of creating healthy and sustainable environments in Asia-Pacific cities and regions.

Green Square: From a rich industrial past to a vibrant, sustainable and connected community

Sydney is Australia's largest city, with a population of about 5 million people. Green Square is anticipated to become Australia's largest urban renewal initiative to date, to be supported by participating public and non-public stakeholders with the aim of being the most liveable, resilient, lively, walkable, accessible, sustainable and unique area of the city for the benefit of an estimated 61,000 residents. It will host a socially and economically thriving town centre, markets, festivals and world-class sporting and community facilities.

The project is supported by sustainable mobility infrastructure – a transit-oriented, high-density development aimed at minimising its environmental footprint. Public policy and government funding for the initiative is committed and a private finance, legal, technical and logistical infrastructure strategy is well advanced as is the monitoring and evaluation methodology to assess the initiative's performance against a range of social, economic, urban and environmental indicators that aim to show that high density living can be compatible with good health and well-being outcomes for residents. Utilising the value-capture and public-private partnership approach, its economic sustainability is well supported. It will transform an unused, flood-prone, swamp and other disused land while remaining close to a broader economic area. The project aims to produce 21,000 employment opportunities and Australia's largest storm water harvesting and treatment scheme.

Source: Report of the Technical Committee, 2018 Guangzhou International Award for Urban Innovation



Green Square-Active Transport Cycling Campaign, Sydney, Australia

Natural disasters further precipitate action on disaster resilience, in particular, post-disaster urban regeneration, recovery planning and city reconstruction opportunities. Post-disaster recovery can take some time and the timespan can be creatively remapped into a dual-term approach, early (short-term) recovery and long-term recovery, as illustrated by Christchurch, New Zealand. Christchurch has used the post-disaster recovery process to rebuild the urban social

fabric and enhance resilience, thereby adopting an expressive learning and sharing approach to enable continual improvement and a transitional city programme that involves all sectors and multi-stakeholders. The programme includes support for recovery (healing and well-being, sense of place and business) as well as elements of long-term recovery, such as testing new ideas, enhancing community resilience and creating a new identity for the city.



Credit: Travellight

Christchurch, New Zealand - New Regent Street in the centre of Christchurch, with outdoor cafes and speciality shops, and the tram route running through it.

Christchurch: An ever-evolving city

From 2010, a series of earthquakes and aftershocks caused loss of life and extensive damage to the city of Christchurch in New Zealand. The damage included destruction of 1,200 commercial buildings and damage to 90 per cent of residential properties. The city is using the recovery process to rebuild the social fabric as well as to enhance resilience. Extensive engagement with citizens was launched through the “share an idea” campaigns. From the thousands of responses received, the community’s vision of a liveable, vibrant and prosperous city began to take shape. A transitional city programme includes support for recovery in three key areas: healing and well-being, sense of place and business. At the same time, the transitional programme contains elements for long-term recovery, such as testing new ideas, enhancing community resilience and creating a new identity for the city. To date, hundreds of community activities have been organised and vacant spaces in the city have been activated with creative projects. The private sector has contributed significant financial and in-kind support while 10,000 hours of voluntary work hours have been given by the community. An indication that Christchurch is firmly on the way to recovery is the fact that it is once more being listed as a tourist destination worth recommending.

Source: Report of the Technical Committee, 2014 Guangzhou International Award for Urban Innovation

Urban development is not just about addressing physical and environmental issues; there are also the social impacts of rapid urbanisation e.g. lifestyle changes leading to the emergence of adolescent developmental problems, including teenage prostitution and internet addiction Seoul

in South Korea created the Self-Empowerment School and I Will Centre youth enhancement programmes, illustrating how local communities and stakeholders may be mobilised to address youth issues in rapidly growing cities.

Seoul: Dealing with challenges facing youth

Seoul in South Korea aimed to help young people experiencing severe problems through two highly original initiatives. The first is a Youth Prostitution Prevention Project, and the second tackles the growing problem of internet addiction, which is of great significance in Korea and many other countries. The issue of teenage prostitution has grown steadily over the last 15 years, and around 200,000 young people run away from home each year. Many young girl runaways are at grave risk of falling into prostitution, even if they do not define themselves as such. When they are found, sending them back to homes that are often dysfunctional and prone to domestic violence or to temporary shelters have proven to be ineffective. Therefore, a new philosophy of social intervention has led to the establishment of the Self-Empowerment School for Teen Prostitutes that is run by a multi-disciplinary team.

The first school opened in 2009 followed swiftly by a second. Their success has led to co-funding by the central government. A restaurant/café was opened to provide job training and experience for the girls. A crucial element in the success of the schools is its focus on self-empowerment – the engagement of the girls themselves in building a brighter future. The initiative also uses the web in a proactive way and finding practical vocational/job training and placement is central. The school initially met with opposition from local residents, but the city has worked hard to change their perceptions and win their support.

The second issue – internet addiction – is important given that over 12% of Korean citizens between the age of 9 and 39 are estimated to have some symptoms of internet addiction. It affects young people in particular. The city government has set up “I Will Centres” since 2009; five such centres were established by the end of 2012. The aim is to help young people commit to changing their lives, using a wide range of counselling and therapy techniques and also through preventative work in schools and with parents. The centres have already led to significant international interest.

Source: Report of the Technical Committee, 2012 Guangzhou International Award for Urban Innovation



View of downtown at Gangnam Square Seoul, Korea



Colorful village landscape in Malang City, East Java, Indonesia

Many of the cities' experiences testify to the importance of creating public awareness about urban challenges and the need for sustainable urban development, whether it is problems affecting youth, disaster resilience, climate change or environmental management. Public awareness is key to community engagement and community participation and empowerment are key success factors in many of the projects, even though governments and the public sector are essential development partners. Effective use of local partners, including NGOs and public-private partnerships, is critical.

Different business models prevail, from the "government leads, enterprise operates" to the coordinated approach between public, private and community groups, where the government is the facilitator, and community-led engagements that demonstrate how the community could be mobilised and invested with skills and self-led activities for community risk reduction during disaster events. In another example, participatory budgetary planning is adopted to engage and empower local communities in development planning. In other cases, where the government has not acted, communities have stepped forward and initiated action, shifting the development paradigm from inaction to "create from within and attract".

Water Banking Movement: Glintung goes green to reduce risk of flooding

About 5.5 per cent of Malang city in Indonesia is characterised by slum conditions that cover 608 hectares. The slum settlements are largely inhabited by informal sector workers and are often vulnerable to flood and disease. Glintung community, with the support of Malang City, has demonstrated an environmentally sustainable approach to addressing the climate change challenge through collective action. The neighbourhood leaders inspired a planned social environmental movement to transform Glintung from a climate risk to a climate-resilient kampong through a participatory approach. The Malang city government integrated this social movement with a pilot project – the Water Banking Movement. The community initiatives included tree planting in the neighbourhood, building catchment areas in every house, building vertical sky gardens, producing organic produce and integrating local cultural heritage. The technical solutions were provided by the Faculty of Engineering, Brawijaya University, and local businesses provided a dedicated market for organic food products.

Source: Report of the Technical Committee, 2016 Guangzhou International Award for Urban Innovation

With globalisation, it is not just the local population's needs but also the increasing population of visitors to the city to consider. In this regard, Yiwu in China offers an innovative approach to engaging with and empowering foreigners living in local communities to promote cultural tolerance, social inclusion and sense of belonging. As an international trade city, Yiwu has implemented China's first "by foreigners, for foreigners" business and trade dispute mediation, leading to a resolution success rate

of 96 per cent and recovery of enormous potential economic losses for businesses, which have inspired other Chinese cities. Participatory planning and empowerment are important attributes of inclusive urbanisation and sustainable development. Strengthened community relationship can significantly reduce conflicts, inequalities and social tensions, forge a stronger sense of ownership and sustainability in implementation. as well as support economic development.

Innovative initiative to build a harmonious and integrated Yiwu

The city of Yiwu in China, with a population of 2.2 million and density of 2,024 persons per sq. km., is a major wholesale consumer goods and e-commerce centre of the country and the world. It is ranked as the world's largest wholesale market of consumer goods, exporting to over 200 countries. Every year, about 500,000 businesspeople from across the world visit Yiwu while over 13,000 of them reside in Yiwu. In response to the growing number of foreigners in the city, Yiwu has since 2016 implemented a range of inclusive and innovative strategies to promote inclusion and a sense of belonging, including among overseas businesspeople.

The strategies cover a wide range, from business to culture, including the development of a first-in-China mediation of foreign-related business disputes by foreigners and for foreigners, a one-stop service for all international trade examination and approval transactions, an international family programme to strengthen communication and community building between local and foreign residents, and the issuing of a foreign merchant card to help foreigners access public services that are provided to the local Chinese people, among others. The vision is to create a good business and living environment for both local and foreign residents and to promote mutual understanding and a better sense of integration. Yiwu has taken the bold measure of improving the living environment of foreigners as the yardstick to measure its success in improving the living environment of all the city's residents.

Source: Report of the Technical Committee, 2018 Guangzhou International Award for Urban Innovation



Credit: Testing

Panorama of Yiwu International Trade City on SEP 9, 2010 in Yiwu of Zhejiang Province, China. Yiwu is regarded as the largest market of small commodities wholesales in the world.

Songpa-gu,
South Korea



An increasing number of cities have embraced technological innovations to help deliver a sustainable future, improve urban life and become smarter in urban management. Mobile phone apps are being developed to help manage bicycle renting and to support green mobility, while some cities in China are using ICT to improve residents' access to city services. Kaohsiung provides citizens with a 24/7 client-oriented and seamless response service that offers a "one-stop shop" service and channel to city hall to suggest how to improve the city. Performance metrics and evaluation are integral

to ensuring greater service efficiency. Many, though not all, have started to monitor and evaluate urban development, especially in terms of citizen satisfaction and service delivery. Others have used state-of-the-art GIS-based tools and technologies to advance green infrastructure planning and development. Songpa-gu in South Korea demonstrates an inventive business and technology model for promoting renewable energy, redistributing energy to the energy-poor and the international community while integrating environmental sustainability and energy welfare.

Songpa Solar Nanum (Sharing) Power Plant, Songpa-gu, South Korea

This initiative presents a creative business and technology model to promote renewable energy – a public solar generation plant development that seeks to integrate issues of environmental sustainability and energy welfare. Its lessons are particularly relevant for energy-poor cities and countries. It offers an alternative to the common practice of energy subsidy. Despite challenges (e.g. high initial cost), the Songpa Solar Nanum outlines how poor and vulnerable groups (like the elderly and disabled) can and have benefitted from the redistribution of profits: 25 per cent of net profit (or 200 million won) is devoted to people who lack access to energy. This support is comprehensive, ranging from support for energy costs to replacement of household lighting and equipment (e.g. washing machines and refrigerators) to improving energy efficiency. Part of the profit is also ploughed back into plant reinvestment and improvement as well as to support other developing countries (e.g. donation of wind solar integrated generator to Mongolia and Vietnam).

Another commendable feature is community involvement. The initiative is driven by local residents' participation and efforts. From the outset, the community is involved and included in initiative conceptualisation and development. The local residents are not just users but co-producers of energy. The initiative is financed through a combination of the city's budget, local residents' donations and environmental/financial investment companies on a BOT public-private partnership model.

Source: Report of the Technical Committee, 2016 Guangzhou International Award for Urban Innovation

2.4 Lessons learned

The Asia-Pacific region covers a diverse multitude of large and small countries that vary in terms of climate, land area, population, political economy and economic development. Many countries in the region are, however, experiencing rapid urbanisation and are innovating to address local challenges. If the top 20 key words from the Guangzhou Awards submissions are any indication, many of these challenges are not unique to the Asia-Pacific region. These are also the concerns of many other countries around the world that are searching and transitioning towards sustainable, smart and socially inclusive development. The initiatives implemented by the Asia-Pacific countries, though differing in scale, reinforce the following:

- Good governance – the importance of strong and committed leadership and vision to address rapid urbanisation and turn challenges to opportunities;
- Integrated planning – the need to adopt a holistic and integrated approach to urban challenges;
- Partnerships and multi-sectoral collaboration – the urgency to collaborate across sectors and silos to activate resources and ensure effective urban solutions;
- Capacity building and community empowerment – capacity building and community engagement at the local level to deliver change that can have a real impact at the local level;
- Fact-finding – peer-to-peer learning and sound research evidence to develop evidence-based, more effective policy and sociotechnical solutions;
- New business models and investment strategies – could be explored to stimulate and integrate innovative technologies in urban solutions.

Many of the solutions implemented by the cities demonstrate integrated, multi-pronged, multi-sectoral and multi-partner actions that seek to address local urban concerns and challenges holistically through a people-first lens. The approach, strategies and outcomes often

involve the multi-dimensions of sustainability – economic, social, environmental, governance and increasingly technology. As the UCLG recommends, sustainability actions to address highly interrelated, multi-dimensional urban challenges must be:

- Fully integrated and comprehensive. An integrated approach involves putting people at the centre of development to promote innovation and develop local variations for policies such as
 - Implementing multilevel, multi-stakeholder, collaborative governance frameworks;
 - Utilising a “whole of government” and “whole of society” approach to development;
 - Involving all local stakeholders for a co-owned and accountable process of localisation of global development agendas;
- Evidence-based, which involves
 - Building a critical body of knowledge about how cities are progressing towards sustainability, including what initiatives are being put forward and what obstacles are being faced and resolved;
 - Working with knowledge partners like universities to collect data, promote labs to experiment with innovation, and contribute towards measuring the overall progress towards the SDGs (develop appropriate indicators);
- Context-specific, including,
 - Understanding the multidimensional issues; and
 - Building on local conditions, needs and processes to maximise potentialities to achieve sustainable and inclusive cities (economic, social and spatial).

3

THE MIDDLE EAST AND AFRICA

Demographically, the Middle East and Africa (MEA) is a vast and heterogeneous region covering three continents (Africa, Middle and Western Asia, and South-eastern Europe). It includes 54 African countries, and 17 countries in the Middle East region. The region tends to be depicted in various configurations (e.g. Sub-Saharan Africa and the Middle East and North Africa – MENA) and has a complex history and geopolitics. In total, the combined

region represents almost a fifth of the global population, and is characterised by a rapidly growing, youthful and urbanising population. The region also represents the world's largest concentration of natural resources (particularly minerals, water and forests). Despite this, the region is faced with many serious vulnerabilities, including poverty, inequality, conflict, and environmental risk.

3.1 Regional trends and challenges

The United Nations Sustainable Development Goals (SDGs) adopted in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030 are all significantly aligned to the priority issues for the Middle East and Africa region. In relation to these goals, the region faces some unique challenges that may also present opportunities for socio-economic transformation that is much needed.

The region has experienced challenges of **urbanisation**, with massive population growth and influx (due to rural-urban migration and displacement of refugees), which has contributed to growing informality, poverty, lack of access to basic services, inequalities, urban violence and conflicts. For these reasons, the UN has emphasised the urgent need to plan, manage,

finance, as well as monitor and report on urban and territorial growth and development in the region. Urbanisation over recent decades in the Middle East is also credited with accelerating the region's growth and globalisation, and is considered to potentially offer similar prospects for Africa.

However, another significant dynamic has been that of **displaced populations**. According to the Office of the High Commissioner for Refugees (UNHCR), 70.8 million people worldwide have been forcibly displaced due to conflict and insecurities, and a significant proportion of this world refugee population is from and in the MEA region. Countries like Syria, Afghanistan, South Sudan, Somalia, the Democratic Republic of the Congo (DRC), and the Central African Republic are among the main countries from which refugees originate globally, while Turkey hosts



Internally displaced child Syrian refugees in the Atmeh refugee camp, Idlib province Syria

the largest refugee population in the world. The displacement of populations presents numerous challenges for social stability, service planning and provision, and has led to increasing informality and precarity of the population.

In addition to relatively high **natural population growth**, the region is characterised by a relatively large **youthful population**, the highest youth population share in the world (the so-called “youth bulge”). This is considered to be both a potentially significant opportunity for economic activity and innovation, as well as a risk due to the increasing demand for employment by a predominantly young population – where frustration can lead into radicalisation and civil instability.

There has been a growing focus on **economic growth** in the region. Africa has several emerging economies, and has also had frontier market appeal. Some Middle Eastern economies have been able to progress on modern development programmes and economic diversification. In spite of this, however, there has been relatively **limited economic growth and social economic inclusion** in the MEA region overall, which means that the countries are faced with challenges of informality and poverty on a human level, and backlogs in infrastructure and facilities due to limited fiscal capacity. The resource-rich region, however, continues to attract global capital attention.

The rising **inequality** in the region presents a significant risk. While MEA has among the wealthiest countries in the world (oil-rich countries like Qatar, Kuwait and the United Arab Emirates – UAE, and large middle-income economies like Nigeria, Egypt and South Africa), it also has the poorest ones (among these are numerous sub-Saharan African countries, Yemen, Palestine and Afghanistan). Oxfam has also reported extreme and increasing intra-country inequalities in this region, which may be further deepened by the impact of the COVID-19 pandemic.

Another major global risk that affects this region in particular is **climate change**. Although the region is resource-rich and holds great potential to be more carbon neutral, it still faces serious environmental vulnerabilities and is faced with crucial sustainability and resilience pressure. Sustainable water consumption and provision and management of wastewater are a big threat in much of the Middle East, while in much of the Sahel and Southern Africa, relatively higher than global mean temperature increases are anticipated. This presents risks for health, livelihoods, food productivity, water availability, and human and biosphere security.

Technology is a significant feature in the region, with wide penetration of technology and social media. World Bank and African Development Bank reports suggest that the number of mobile and internet users in Africa surpasses the number in the United States and Europe. In addition, digital platform economies are rapidly creating new opportunities for livelihoods and giving a voice to millions in the region. However, digital exclusion is also a feature of the unequal regional socio-economic landscape.

Finally, a range of **governance** issues are perennially referred to in relation to the region’s development and prospects. These include challenges related to:

- Legacy centralised governments
- Relatively weak democracies
- The rule of law
- Respect for human rights
- Active and sometimes volatile civil society
- Poor technology regulation and slow deployment thereof
- Consistently stable, transparent, inclusive leadership, both nationally and regionally

As such, the region has experienced periodic violence, civic instability, and conflict. The sum total of these serve to compromise the quality of governance institutions, development investment, accountability and monitoring. However, governance strengthening issues are a significant focus of multilateral institutions in this region and there are frequent and resounding calls and initiatives to support improved governance.

There are major concerns and uncertainties about how responses to and impact of COVID-19 might affect the region. Although the region may have experienced less drastic infection and mortality rates than the Global North, the effects of the pandemic are also social and economic. Already the pandemic has exposed the lack of protection for the most vulnerable people as millions have lost jobs and livelihoods. Shifting local and global investment priorities in this period may have a significant impact on the region, while drops in oil and tourism revenues are of significant consequence to this region’s already vulnerable economies.

3.2 Trends and challenges in urban innovation

Africa was not looked at as a major source of innovation in the 20th century. Indeed, the entire continent has tended to account for less than 1% of world research output. It has characteristically weak innovation ecosystems, a combination of limited economic infrastructure (physical as well as digital), weak systems, limited capabilities, poor access to capital, and lack of robust policy frameworks and effective governance systems. However, there is evidence that Africa has been innovating and even pioneering key innovations for its development. It is a vibrant hive of data and innovation start-ups and hubs with numerous accounts of key inventions and innovations in, for example, the mobile tech, green, and social innovation spaces. It is worth noting that the pioneering mobile banking app M-Pesa was developed in Kenya, and spurred the diverse mobile money markets that have become global in scale and impact.

Recent sophisticated data analytics have also shown that Africa has increasingly demonstrated the strongest growth in scientific production, at 38.6%, in the period 2012 to 2016. The bulk of this scientific production originates from Algeria, Egypt, Kenya, Morocco, Nigeria, South Africa and Tunisia, with rapid growth also evident in Senegal, Mozambique, Rwanda and Zambia.

However, Africa has continued to face crippling institutional challenges to innovation. National systems of innovation – where they exist – tend to be dislocated from local development and governance sectors and issues. There is limited sustained public investment at scale, and there have been frequent calls for more local policy, planning and systems innovations.

The relative influence of these may ironically be evidenced by rapid shifts experienced during the COVID-19 pandemic, where the World Health Organisation (WHO) reported that by October 2020 Africa represented 12.8% of the total technology innovations worldwide that were aimed at COVID-19 – a huge jump from the reported 1% previous scientific output. This contribution may be attributed to significant and focused programming, funding and enablement that were suddenly mobilised domestically and internationally to encourage African innovators to

develop solutions in a time of crisis. The region's experience with previous pandemics was also well recognised by the Centers for Disease Control, among others.

The Middle East has been a slightly different story – and here the relative performance of sub-regions represented begin to diverge somewhat. On the one hand, it is reported that the Middle East ranks second only to China in its level of commitment to industrial innovation. Guided by national, large-scale frameworks such as UAE Vision 2021, Saudi Arabia Vision 2030, and Qatar's National Vision 2030, it is reported that “the Middle East is emerging as a melting pot for multinational corporations and leading global academic institutions, and Middle Eastern governments and private institutions have established global partnerships that serve the innovation agenda”.

In local government terms, it is also reported that “local governments in the MEWA [Middle East and Western Asia] region have been developing innovative approaches to improve resilience and sustainability in their territories and communities. Amman in Jordan, Byblos in Lebanon and Ramallah in Palestine, for example, have all joined the 100 Resilient Cities network: the membership has helped the municipalities assess the status of their resilience outlook and develop state-of-the-art strategic planning to adequately meet resilience criteria.

Turkey, Israel, Iran and UAE have had explicit public sector innovation systems and investments over the past few decades, which also seem to have leveraged or supported growth in entrepreneurial activity, innovative start-ups and services.

However, the region is also characterised by intense socio-political, economic and environmental vulnerabilities, as indicated above. Many of the countries in the region are only marginally visible in the innovation wave, and remedial issues (reconstruction and stabilisation) continue to be the focus for many countries, which may belie what appear to be more modern innovation fields.

3.3 Guangzhou Awards profile in the region

There were a total of 66 submissions from Africa across the four Guangzhou Award cycles, emanating from 18 out of 54 countries on the continent. Over half (55%) of these submissions came from 5 countries: Nigeria, South Africa, Ethiopia, Kenya and Senegal. In the case of the Middle East, there were 201 submissions emanating from 9 of the 17 countries in the region. However, close to 90% of the applications come from just 3 countries: Turkey, Iran and Israel. It is worth noting that Africa had the highest number of countries participating in a region (although with a relatively small number of applications), while the Middle East had a higher number of submissions from in the region. For both regions, there is some correlation between the submission intensity and countries where there has been a combination of economic strength, demographic size or growth, and scientific capacity, as well as relative socio-political stability.

An assessment of the key words across these applications shows that most African submissions focused on issues of sanitation infrastructure/ sustainable sanitation, waste management, urban renewal, community empowerment and participation, and socio-economic activities. The Middle East submissions focused mainly on capacity building, issues of empowerment, women's and children's development, and urban planning/smart cities. There were synergies on issues of capacity building, empowerment and urban planning in the two regions.



Young girls pumping water at a public borehole in Bamako, Mali.

The region's thematic findings demonstrate strong alignment to several of the key SDGs, including the goals on gender equality (5), clean water and sanitation (6), innovation and infrastructure (9), and sustainable cities and communities (11). What therefore seem to be key innovation focus areas for local governments in the region are a combination of physical infrastructure issues, as well as building the capacity and support for driving development.

Figure 3.1: Top 20 key words in submissions from Africa and the Middle East (2012-2018)

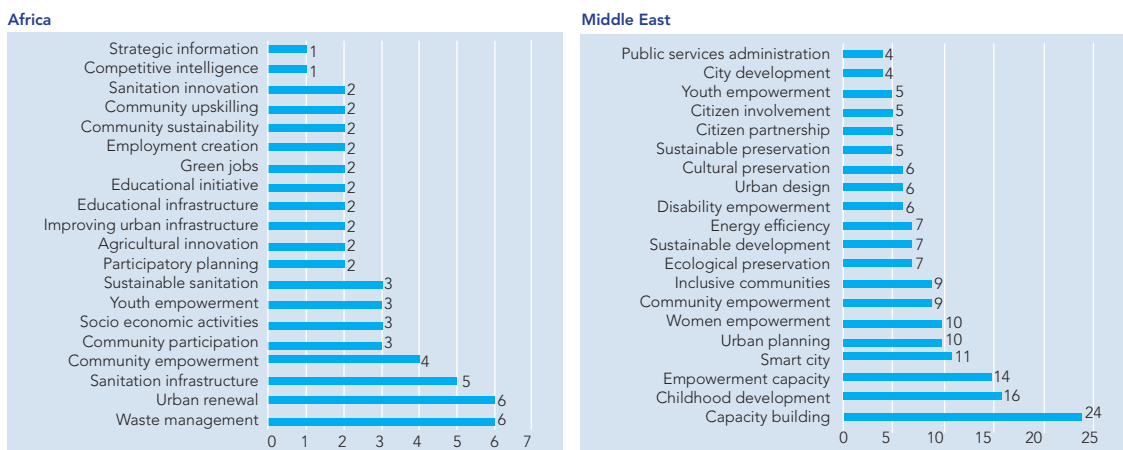
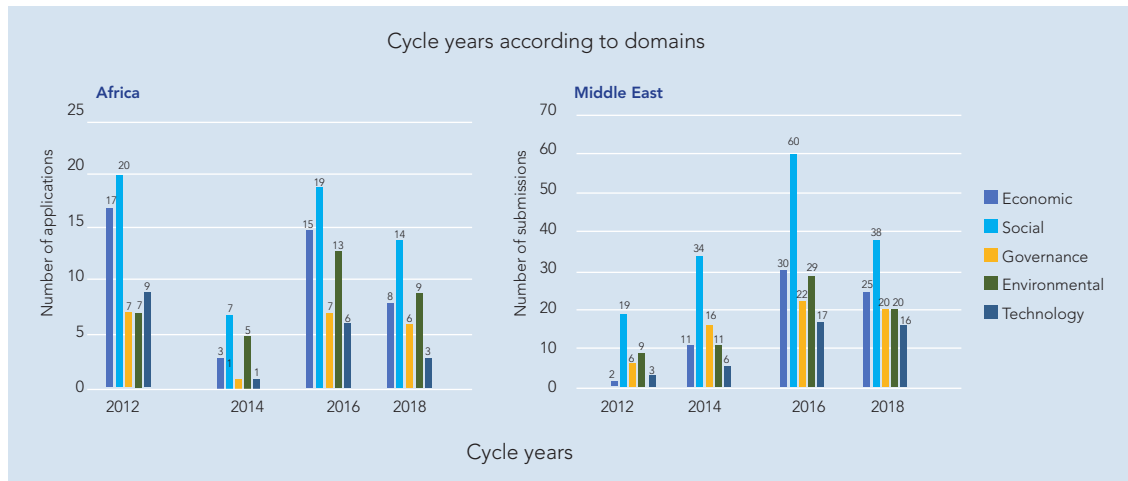


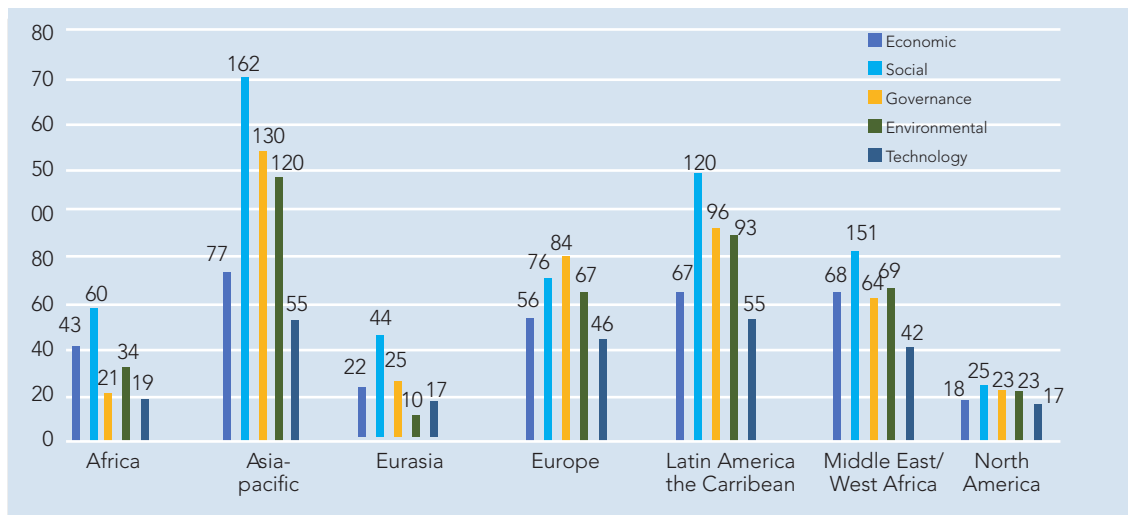
Figure 3.2: Five sustainability domains in submissions from Africa and the Middle East (2012-2018)



This focus is reinforced when the submissions are analysed under the five sustainability domains: economic, social, governance, environmental and

technological. Social issues consistently emerge as strongest in both regions, but with governance issues typically rising in focus.

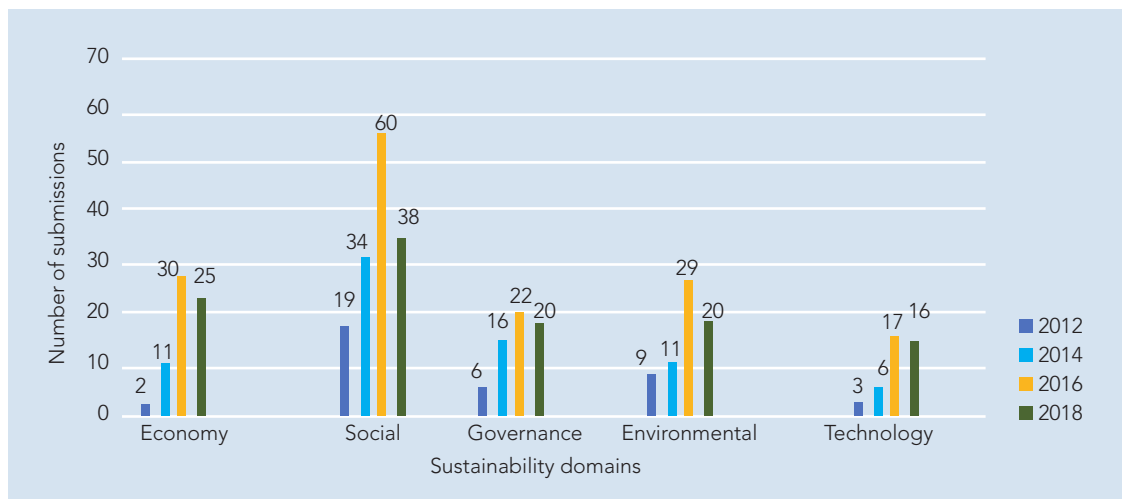
Figure 3.3: Cross-regional analysis of the 5 sustainability domains



Economic and environmental issues may seem to be a surprising omission given the vulnerabilities faced in the region, but the data shows – particularly in the case of the Middle East – that the focus on these areas is growing steadily. In

part, the reason for the relatively lower focus may speak to the location of mandates in these fields (economic and environmental) primarily at the national or regional levels.

Figure 3.4: Domains according to cycle year



3.4 Emerging opportunities and innovations

Municipalities from the combined MEA region have been a source of innovations on a wide range of challenges facing communities in these countries, including very fundamental issues of basic infrastructure provision, as indicated in the focus on issues of sanitation and municipal

systems. Through innovations, such as the integrated solid waste management systems of Qalyubeya in Egypt, they begin to demonstrate how innovative solutions can address pressing challenges while stimulating economic activity in low-income contexts.

Qalyubeya's integrated community-based solid waste management system

Qalyubeya Governorate is part of Greater Cairo, and is one of the largest urban areas in Africa, with a mosaic of sub-cities where over 20 million people live. The area generates more than 21 million tons of waste each year. The Zabaleen (informal waste collectors and recyclers) play a critical role in collecting this waste.

The integrated community-based solid waste management in Qalyubeya is an initiative that adopted an integrated approach that focuses on waste recycling, resource recovery, awareness raising, and capacity building with regard to environmentally-sound methods of managing waste, providing medical services, providing income-generating activities, and improving the living conditions of garbage collectors. The team from the governorate works with the Zabaleen, and has promoted several initiatives to improve their livelihoods in Khossoos and Khanka cities and to improve the overall environmental conditions. These include encouraging the Zabaleen to form companies that collect waste on behalf of the district, converting waste to fuel and providing an emergency unit for waste collectors who face frequent occupational hazards. These initiatives have improved the lives of about 20,000 waste collectors and enhanced the environment of more than 750,000 inhabitants.

Source: Report of the Technical Committee, 2016 Guangzhou International Award for Urban Innovation



Jean-Marie Takoule (www.afric21.africa)



There were also interventions focused on economic growth and inclusion, such as the case of the eThekweni in South Africa where an innovative new upgrading model for informal settlements

was developed, linking the improvement of living conditions of the urban poor with improved economic opportunities and dignity.

eThekweni, South Africa: Participatory partnerships with the private sector

The informal residential area upgrading project conducted in eThekweni by the Durban Municipal Government in South Africa was one of the shortlisted outstanding projects in the 4th Guangzhou International Award for Urban Innovation. This project not only embodies gradual, participatory and procedural features, but also contains the characteristics of public-private cooperation. These characteristics directly affect the spirit of urban governance, which was the key reason why this project was on the shortlist of the award. However, we should also note the reason why the government values informal residential areas so much. Informal residential areas are often the places where poor people work or live, so the living environment there is usually relatively terrible. To upgrade and reconstruct such places is a reflection of a city's urbanisation strategy, as well as the city's spirit and ethics. What should be pointed out in particular is that this project also embodies inclusiveness. Like other projects, it also needs to mobilize women, children and poor people to participate in urban governance, so the inherent spirits of inclusiveness embodied in the sharing of the convenience of the city are the same. Richard Florida believes that the contemporary urban crisis is extremely pressing. The division of classes in cities may lead to populism. Future cities should not only encourage innovative wealth creation, but also improve the quality of life and lifestyle for all people. Although these suggestions are reflections on the development process of cities in developed countries or metropolises, they are also suitable for the urbanisation in the initial stage of developing countries."

Source: Research Reports on 15 Shortlisted Cities from the Fourth Guangzhou International Award for Urban Innovation



The challenge of balancing the desperate need for economic development with environmental challenges has also attracted innovative

approaches, such as in Abu Dhabi's Estidama programme.



Credit: Metropolis

Abu Dhabi's Estidama Programme

In one of the world's most rapidly growing cities, a new government-mandated programme —Estidama (Arabic for "sustainable") – aims to make all new buildings in the UAE more environmentally responsible and sustainable. The programme targets to reduce energy use by 31 per cent and water use by 37 per cent, and to divert 65 per cent of construction waste from a landfill. There's a mandatory audit procedure for each project.

The rules ran into initial resistance from industry groups that feared increased costs and more difficult project approval. But independent analysis has confirmed that cost increases are negligible. The Estidama Programme in Abu Dhabi offers great food for thought on how to balance economic growth with ecological protection for green and sustainable development.

A key component of Estimada is the Pearl Rating System (PRS), a sustainability rating system introduced in 2010. The PRS guides projects through design, implementation and management. Although sustainability rating systems exist elsewhere, Estimada is the only such programme designed and implemented in the Middle East with input from different stakeholders. It is also the only such programme specifically designed for arid regions.

Source: *Learning from Cities, 2nd Guangzhou Award, 2014*

These cases all show creative ways of working across domains to create integrated solutions that address multiple SDGs – innovations borne out of a need that seems characteristic of the region. There were also the initiatives for building municipal capacity to better serve and modernise institutional functions. Creative and frugal approaches have included everything from tech-supported initiatives to enhance municipal management capacity (e.g. using mobile platforms to quickly train municipal managers), to creative peer-based approaches, such as the one between Lilongwe, Malawi and eThekweni, South Africa.



Adele Hosken/Cities Alliance

Lilongwe-Johannesburg Mentorship Programme

This initiative represents an innovative three-way partnership between the City of Johannesburg, the Lilongwe City Council and the Cities Alliance, as well as donors and international organisations. Johannesburg provides assistance to Lilongwe in developing a city development strategy focusing on the attainment of the Millennium Development Goals. Started in 2008, the initiative has led to substantial improvements in the capacity of Lilongwe to formulate and adopt strategies in economic management, shelter, land and infrastructure. The City Council has also computerised much of its accounting and billing system, which has increased transparency, accountability and efficiency. The new system as also led to increased revenues, which allowed the Council to increase salaries based on a performance management system.

Source: *Learning from Cities, 1st Guangzhou Award 2012*

Old town commercial centre and high crime area in Lilongwe, Malawi.

A road sign in Hebrew, Arabic and English



Credit: Emil Salman

Within the social focus of the region, several of the region's projects revolved around strengthening community and societal values. A good example is the programme in

Menashe, Israel, which works towards improving mechanisms for dialogue, consultation, cooperation and shared action with a context of great religious and cultural diversity.

Menashe: Education towards co-existence between Israeli Jews and Arabs

"Education towards the co-existence of Israeli Jews and Arabs" is a project in Menashe, Israel, that is changing the situation in the Wadi area of Menashe where the Jewish and Arab communities were totally segregated and did not socialise with each other. This project takes two communities that used to be independent from each other and even had disputes and conflicts and brings them together with win-win cooperation through common development goals. In an effort to increase these communities' understanding of each other, the project brings together nine pairs of school classes, one each from the Jewish and Arab communities. Based on six months of intensive joint activities aimed at getting to know each other, the students in these classes develop a mutual trust relationship, share a common area and work collectively on different projects. This project has brought together 600 students, dozens of teachers and over a thousand parents. By bringing together residents with different beliefs and backgrounds based on shared educational goals, this innovative approach is helping to address problems of alienation, distrust and hatred in the city's communities.

Source: *Getting Residents Engaged: Results of the Third Workshop for Thought Leaders (2020)*



Credit: Emil Salman

Muslims and Jews in Jerusalem

Other social innovations focused on addressing the kinds of issues facing vulnerable groups, such as women, children, the disabled and ageing populations. Yet again, integrative solutions were evident, such as the Mezitli womens' market in Turkey, where economic inclusion was used to address gender disparities.

While innovations to address environmental vulnerabilities in the region appear to be fewer than might be expected, there are also very exciting initiatives, such as Kocaeli's scheme to establish an earthquake early warning system coupled with citizen awareness, an important intervention for building local resilience in a vulnerable zone.

Kocaeli: Prepare Before It's Too Late – Learn To Live With Earthquake

Kocaeli in Turkey is located in an earthquake zone. It was the epicentre of the Marmara earthquake that caused massive casualties in 1999. Since then, Kocaeli has been determined not to live with the risks of earthquakes. It started to take precautions against earthquakes so as to reduce possible damages. The Kocaeli government, the Disaster and Emergency Response Centre of Turkey and the Chamber of Industry and Commerce of Kocaeli jointly implemented the project, "Prepare Before It's Too Late: Learn to Live with Earthquake". This effort combines two distinctively separate but complementary entities, namely, the comprehensive monitoring system on earthquakes, which is to collect data as well as analyse earthquake risks, and the earthquake education programmes for citizens. In the past, the disaster and emergency response management in Turkey merely focused on scientific research, leaving education and public awareness behind the scenes. As the project began, the education and public awareness portion was put on the top of the agenda, thus building a closer relationship between the state government and society. With the help of the education departments, citizens have raised their awareness about protecting themselves against earthquakes and learned a lot about earthquakes, skills on earthquake prevention and first aid. A large delegation of representatives from other cities in Kocaeli Province, institutions of higher learning, as well as foreign countries, have visited Kocaeli to learn about and share technological information.

Source: Learning from Cities, 1st Guangzhou Award, 2012



Credit: Emil Saliman

Kocaeli was the epicenter for the August 17 Marmara Earthquake which affected all the region and cost approximately 18,000 deaths according to the official figures. Kocaeli Metropolitan Municipality started a pilot project to take actively part in this social issue. More than 1.5 million people lives in the region.



Panoramic view of Dakar from the harbour

There is also evidence of adaptations of solutions from elsewhere to address local problems in ways that begin to create sustainable solutions to long-

run challenges such as municipal financing as in the case of Dakar's municipal bond.

Dakar Municipal Finance Programme: Accessing capital markets to improve the quality of life of the urban poor

A large portion of the population in Senegal's capital, Dakar, works in the informal sector. There was a pressing need for a central market place to accommodate the city's street vendors so as to improve their social and economic situation and to provide more convenient and hygienic conditions for consumers. To finance the project, Dakar decided to access capital markets. Not only is it the first city to do so in sub-Saharan Africa (outside South Africa), it is also one of the few cities in a developing country to do so without the benefit of full guarantees from the central government.

Dakar enlisted financial and technical support from a wide range of organisations, including the Bill and Melinda Gates Foundation, the World Bank, the United States Agency for International Development and the Cities Alliance. A total of \$4 million was raised for the project; equally important, the city now has access to a new financing mechanism to achieve its development goals. With this breakthrough, there is now a precedent set for other cities across Africa to benefit from lower transaction costs and lower credit terms, as well as less scepticism among investors as they seek mainstream sources of finance for their respective capital projects.

Source: A Collection of Shortlisted Initiatives of the 2nd Guangzhou Award, 2014

3.5 Lessons from the region

The Middle East and Africa region demonstrates that even with many complex challenges, it is possible to be innovative. Key lessons from the region's participation in the Guangzhou Urban Innovation Awards include:

- Innovative interventions that can cut across domains to meet multiple objectives are necessary in the region's context. These can offer powerful organic examples of integrated development that can address thematic issues while systematically contributing to eradicating poverty (SDG 1), achieving gender equality (SDG 5), reducing income inequality (SDG 10) and making cities sustainable (SDG 11).
- The need and possibility of frugal innovations, from low-tech solutions to simple creative ideas that can be implemented on modern smart platforms.
- Partnership-based approaches where the public sector can act to catalyse and augment non-governmental (NGO or private sector) efforts to address societal problems.
- Building social cohesion and resilience through innovation.
- The importance of human-centric innovations that explore the full range of problems such that they can offer both appropriate technical solutions as well as support for the social issues that would ensure that successful results are attained.
- Room for home-grown solutions as well as adaptation of existing international solutions that are still qualified as innovations within new contexts and conditions.

Credit: APS Photography



Individual electricity connection inside an informal settlement, South Africa

4 LATIN AMERICA AND THE CARIBBEAN

4.1 Regional innovation in context (2012-2018)

For most of the 20th century, Latin America's cities were consumed by the need to manage successive waves of rural migrants, which challenged governmental capacity to service land and provide housing, security and employment at scale. The failure to provide affordable housing, education, and the conditions for ample and stable employment to large segments of the growing urban population across Latin America and the Caribbean (LAC) resulted in extremely high levels of income inequality.

In the first two decades of the 21st century, the region's urban challenges pivoted to issues of inclusion, equity, democratic governance, ecological sustainability and resilience. While the pivot is a testament to major improvements in planning and public investments, as well as the stabilisation of demographic trends, this does not mean that 20th century challenges were resolved. Income inequality continues to be high, informal settlements are pervasive, and the delivery of services and infrastructure fails to meet demand. Arguably, today's challenges are closely linked to the incomplete or unresolved nature of last century's challenges. This is the

case if one considers that the segments of the population demanding greater inclusion and a stake in political futures tend to be the same that have not had their housing, employment, security and environmental needs met more fully by government action and investments.

Nonetheless, it is imperative to recognise that the focus on issues of inclusion, equity and resilience speaks to the significant political and cultural shifts that occurred in the 1980s and 1990s, mainly the widespread return to democratic regimes, the decentralisation of fiscal and political power down to the local or municipal level, and the rise of the environmental movement. By the year 2000, democracy no longer meant just the free election of national leaders, but also the direct election of local government representatives and public participation in the planning and fiscal decisions of municipalities. The mainstreaming of environmental protection and conservation also expanded to include a focus on environmental justice, which in turn bolstered greater grassroots demands to upgrade and formalise informal settlements that tend to be located in environmentally sensitive areas of the city.

Aerial view of a city on a hill, Rio De Janeiro, Brazil



Credit: Celsio Diniz

4.2 Trends and challenges

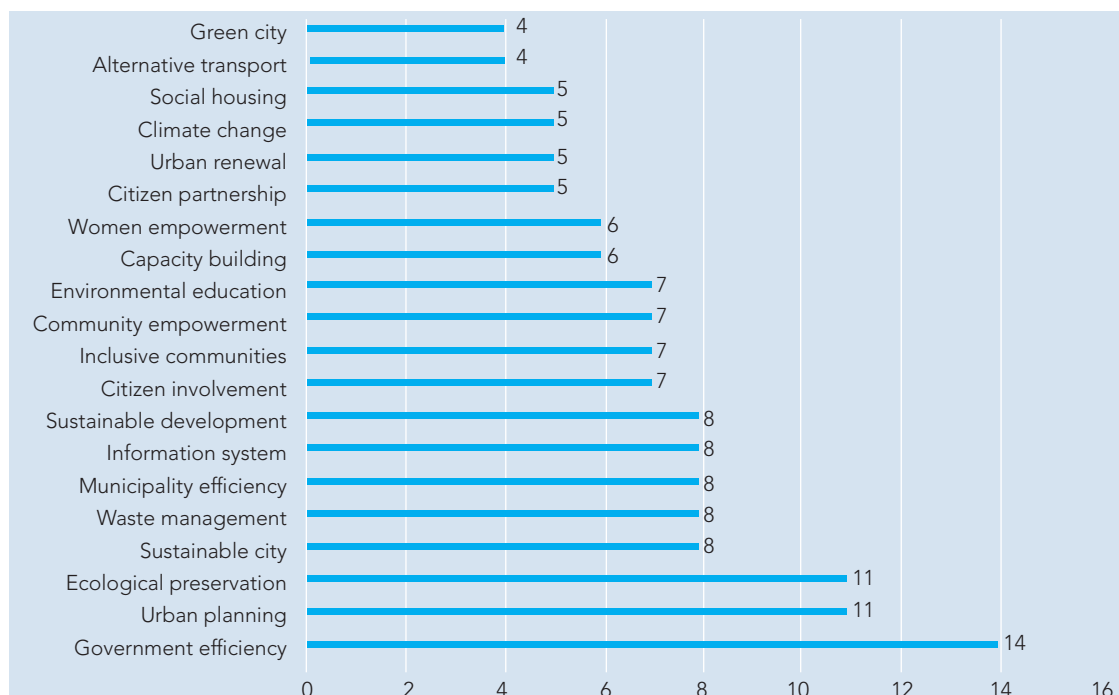
At a policy level, the persistence of old challenges, together with the emergence of new political voices and perspectives on the drivers of inequality, meant that traditional approaches to urban problems had to be reconsidered. The rise of issues that sit at the intersection of land policy, environmental protection, public participation, infrastructure planning, housing and labour markets pointed to the need for better coordination within and across a range of policies and institutions that manage human and natural resources at the local level. These shifts not only put the spotlight on cities as key sites of development and human progress, but also elevated local government authorities and institutions as key actors responsible for the nature and direction of urban development and quality of life.

To understand this regional context is to appreciate the pressures on local governments to innovate, as well as the strides cities across LAC have made to find creative solutions to old and new urban problems. Thus, in 2012, the then

Under-Secretary General and Executive Director of the United Nations Human Settlements Programme (UN-Habitat), Dr. Joan Clos, launched the report on the *State of Latin American and Caribbean Cities* by stating: "The Latin American and Caribbean region is considered the most urbanized in the world. It is also one of the regions where intense effort has gone into finding innovative solutions to the different challenges involved in managing cities."

Since 2012, the Guangzhou International Award for Urban Innovation (Guangzhou Award) has elicited 196 applications (approximately 22% of all applications) from across Latin America and the Caribbean, an affirmation of Dr. Clos's observation of the "intense effort" to innovate and address the challenges in managing cities. While the numbers reflect the intensity of the effort, an analysis of the key words associated with the applications points to the focus of those efforts and the ways in which they try to address those larger regional issues of inequality, sustainability, and democratic governance (Figure 4.1).

Figure 4.1: Top 20 key words in submissions from Latin America and the Caribbean (2012-2018)



The top 20 key words during the four cycles of the award reflect the rise of issues and concerns over inclusion (community empowerment, citizen partnership) democratic governance (citizen involvement), and sustainability (alternative transport, climate change, ecological preservation), but also government performance (capacity building, government efficiency). Indeed, the top five key words associated with proposals from Latin America point to the region's focus on local government planning capacity, management and efficiency. The latter is arguably a response to the historically weak role given to local government over urban development issues. The preoccupation with government performance can be seen clearly across the range of proposals from LAC, and it is an element that helps explain why so many of the initiatives are innovative. The LAC submissions demonstrate that innovation

is not solely about novel topics or new technology, but also about focusing on new institutional configurations and practices that ensure that local government is responsive and able to follow through on its commitments.

Institutional capacity is not necessarily a concern in other regions. When compared to the top key words from other regions, the attention to government efficiency, management and planning capacity in LAC stands out (Table 4.1 and Figure 4.2).

The key word analysis indicates one dimension of the preoccupation within and across LAC cities, namely, the need to improve the institutional capacity and efficiency of local governments. A review of the initiatives by domains in LAC shows the region's overarching preoccupation with social, governance and economic issues (Figure 4.3).

Table 4.1: LAC's top 5 key words compared with other regions

	Africa	Asia--pacific	Eurasia	Europe	Middle East / West Africa	North America
Government efficiency	0	0	6	0	0	3
Urban planning	0	15	3	17	10	4
Ecological preservation	0	9	2	0	7	0
Sustainable city	0	12	0	5	0	0
Waste management	6	20	0	0	0	2

Figure 4.2: Cross-regional analysis of LAC's top 5 key words

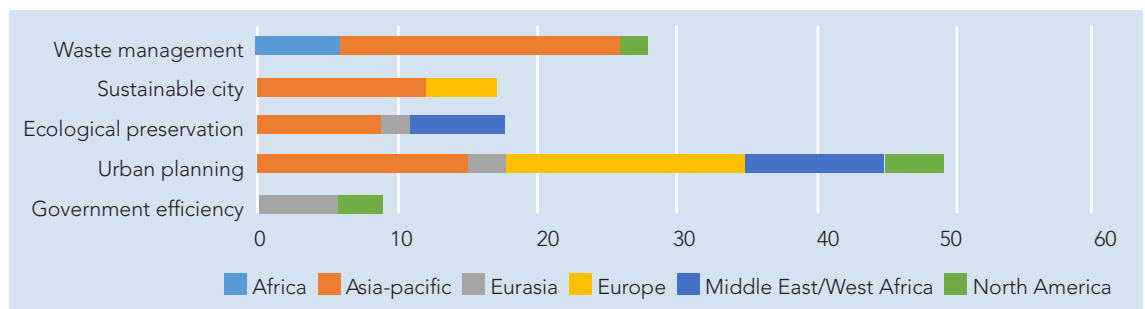
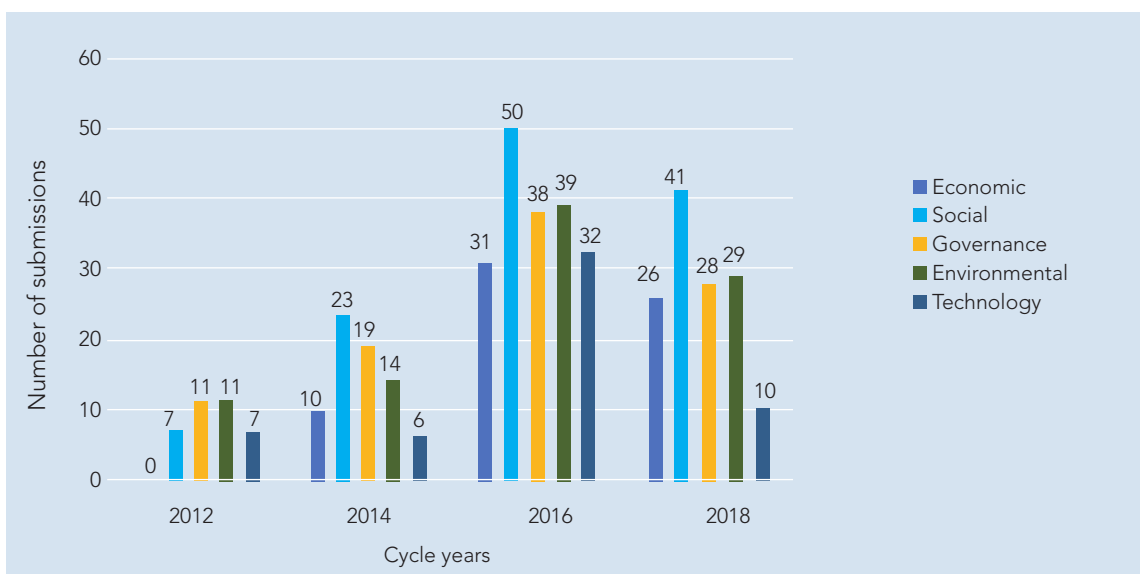


Figure 4.3: LAC submissions by domain



4.3 Opportunities and innovations

If the domains are the ends, the key words for each proposal provide insights into the means used to attain those ends. That is, an initiative focused on innovations in urban planning practice (a key word) was not launched for the sake of planning alone, but also to help advance local goals on the environment. This is mostly the case most in shortlisted initiatives, such as the 2012 “Linking environmental preservation with urban development: the green areas of Curitiba” initiative in the city of Curitiba, Brazil. This is an initiative that the 2012 Technical Committee celebrated for demonstrating “that preserving biodiversity, improving and expanding green areas, and planning for rapid urban growth can be carried out simultaneously and in a mutually reinforcing manner while creating value opportunities for property owners and developers and improving quality life for all citizens.”.

Similarly, the 2018 submissions from Salvador, Brazil, “The Caravana da Mata Atlântica” and “Environmental Recovery Program for the Canabrava Park” represent the city of Salvador’s insight into effective and efficient ways to advance environmental goals (native species landscape restoration). The remediation of contaminated land and reclamation of native species of plants are not simply technical

exercises. As the Technical Committee noted in 2018, the entries represent a “holistic and comprehensive environmental protection project that engages youth and targets traditionally marginalized and at risk communities most affected by deforestation...[there is] value in the initiative because of its engagement with different partners, including universities, and elementary schools...It shows a capacity to be collaborative and flexible.” Arguably, the success of the programme is anchored on a set of institutional innovations, namely the creation of the agency responsible for the projects, the Municipal Secretary for the Sustainable City and Innovation (SECIS), and the autonomy it had to identify and develop public-private partnerships to raise funds and implement the complex set of projects.

The focus on improving government efficiency and capacity to attain larger ends, such as increased social inclusion or environmental protection, was evident in at least three (Buenos Aires, Rio de Janeiro, and Porto Alegre) of the seven shortlisted initiatives in the 2014 cycle. Moreover, the 2014 entries demonstrated local government embrace of old technologies, such as roundtable meetings, as well as new information technologies and big data as tools to project greater transparency and improve coordination



Credit: Guangzhou Award

A van promoting the Caravana da Mata Atlântica—a participatory program that aims on engaging citizens on the planting of trees and create an ecological and sustainable culture in Salvador.

Environmental recovery of Canabrava Park

The Brazilian city of Salvador, with a population 3 million, presented two linked projects that address environmental protection, remediation, reforestation, and education. Both are advanced by SECIS, the Sustainable City and Innovation Municipal Secretary, to address the vulnerable situation of one of the most sensitive biodiversity locations in the world, currently threatened by growing urbanisation.

In order to reverse this scenario, the “Caravana da Mata Atlântica” (a mobile classroom) was created with the purpose of encouraging greater awareness of the importance of preserving green spaces and environmental preservation. It is a holistic and comprehensive environmental protection project, that engages youth and targets traditionally marginalized and at-risk communities most affected by deforestation. A specialised team of the SECIS develops and implements projects, such as tree planting activities, together with the community. Other components of the project are the use of sludge as fertilizer in the reforestation process, and the conversion of a landfill into a public park. The initiative stood out because of its engagement with different partners, including universities and elementary schools. It showed a capacity to be collaborative and flexible in order to advance the project’s higher goals. It demonstrated the ability to redress harmful urban development through a comprehensive campaign of reforestation and the promotion of public space.

Source: Report of the Technical Committee, 2018 Guangzhou International Award for Urban Innovation

within and across city departments and utilities. Buenos Aires, Argentina, presented its ambitious and noteworthy “Collaborative Roundtable for Innovation and Creativity”, which literally expanded and reshaped the policy making table to break siloed approaches to project development. The 2014 Technical Committee recognised Buenos Aires for promoting a literal and figurative space that allowed a cross-section of city departments to engage in frank dialogue, which then generated innovative ideas

in service of the city’s youth and traditionally disenfranchised populations. Some of the initiatives that emerged from the roundtables included the “Schools of the Future” focused on robotics and 3D printers; an “Enterprise Academy” to deepen entrepreneurial potential; a “WiFi for Inclusion” initiative to close the technology gap for less affluent citizens; and a platform to unlock the potentials of foreign market enterprises.



Credit: Metropolis

Collaborative roundtables for innovation and creativity

Like many local government administrations, Argentina’s capital, Buenos Aires, faced a wide range of bureaucratic barriers. These included too many meetings of doubtful usefulness and confusing lines of initiative and accountability. Buenos Aires decided to reform its governance system with a management initiative called “Collaborative Roundtables for Innovation and Creativity”. The central idea of these roundtables was to engage the municipality and its citizens in a frank dialogue that encouraged imaginative and innovative actions by senior officials. The varied initiatives that emerged included “Schools of the Future”, focusing on robotics and 3D printers; an “Enterprise Academy” to deepen entrepreneurial potential; a “WiFi for Inclusion” initiative to close the technology gap among less affluent citizens; and a platform to unlock the potentials of foreign market enterprises.

Source: Report of the Technical Committee, 2014 Guangzhou International Award for Urban Innovation

In that same cycle (2014), the Brazilian cities of Rio de Janeiro and Porto Alegre were noted for their investment in and embrace of information technology platforms that helped improve coordination among city departments to strengthen the city's capacity to anticipate and manage natural disasters (Rio de Janeiro) and centralise municipal data to strengthen citizen engagement in local policies and educational and employment training programmes (Porto Alegre). The Porto Alegre submission was also an example of an innovation building on another innovation: the "Datapoa" initiative was developed as a way to enhance and sustain the high levels of citizen participation in the policymaking process that were generated by Porto Alegre's pioneering use of "participatory budgeting", a process that empowers residents to collectively identify and budget for priority projects.

In LAC, the late 20th century rise of local governments as central and innovative protagonists of human and economic development and environmental sustainability has not been a phenomenon associated solely with the region's larger and more iconic cities like

Buenos Aires, Rio de Janeiro, Mexico City, or even Porto Alegre. In all four cycles, but most notably in the 2016 and 2018 ones, initiatives from small municipalities earned mentions and spots on the shortlist. Two small municipalities within the San Jose, Costa Rica Greater Metropolitan Area received mentions for their creative approach to tackling environmental protection and traffic management. In 2016, Curridabat presented its "Ciudad Dulce" or "Sweet City" programme, which put the promotion of apiaries at the centre of a larger policy to bring nature back into the city, promote more green space, teach the relevance of good planning and land use policies, and educate residents on the importance of human and natural ecosystems. In 2018, the municipality of Santa Ana was shortlisted for its path-breaking work to manage local traffic by promoting bicycle use by women. With few resources, the municipality not only reduced traffic accidents within its boundaries, but also found a low-cost way to provide women with greater access to employment and other resources.



Santa Ana en Cleta: Active mobility and empowerment of women

The San Jose suburb of Santa Ana in Costa Rica, with a population 57,000, was shortlisted for its programme, *Santa Ana en Cleta*, a project dedicated to the empowerment of Santa Ana's local population by teaching women how to ride a bicycle and how to use it as a means of transport. The initiative is considered a step towards the development of the "Active and Sustainable Mobility" programme for the city of Santa Ana. The mobility programme combined three specific areas: the empowerment of women, sustainable mobility and the strengthening of communities. The overall objective was to transform the mobility and road culture of the city of Santa Ana. The first stage of the project focused on ways to encourage women, in particular within vulnerable communities, to use the bicycle as a means of personal and economic development. The project also sought to improve the quality of the urban environment, citizen well-being, health indicators, the recovery of public spaces, as well as and the right to the city.

Source: Report of the Technical Committee, 2018 Guangzhou International Award for Urban Innovation

Aerial view of the Andares and the Puerta de Hierro neighbourhoods. Guadalajara, Jalisco, Mexico.



The cases of Curridabat and Santa Ana are important not only for their creativity and playful elements, but also for the way they call attention to the regional or metropolitan dimensions of many urban or local problems. The “Ciudad Dulce” programme not only focused on the very local conditions necessary to attract bees (space for a variety of plants and flowers), but also how those conditions are also dependent on the good stewardship and conservation efforts done in communities next door and well beyond. Similarly, while Santa Ana’s traffic-calming project focused inward to its own streets and residents, it acknowledged that the issue of traffic safety and gainful employment of women were city-wide, if not regional, matters.

While these cases show that the scale of a problem does not have to deter local

governments to act, they do point to the relative paucity of metropolitan or regional approaches and arrangements in LAC to address major economic and environmental issues. An exception is the metropolitan region of Guadalajara, Mexico, one of the winners in the 2018 cycle. A state and local initiative, the Guadalajara Metropolitan Institute of Planning (IMEPLAN) is an institutional innovation of scale and substance, as it represents a rare instance of the creation of a governmental structure with relevant planning powers at the metropolitan scale. IMEPLAN not only can steward planning and land use decisions within and across municipal governments that make up the Guadalajara metropolitan region, it also has the technical and political capacity to do so by deploying an array of participatory processes that engage citizens from across the region.

Citizen-led metropolitan coordination in Guadalajara

The Mexican State of Jalisco and the 9 municipalities comprising the metropolitan area of Guadalajara (population 4.5 million) decided to take a metropolitan approach to planning in lieu of the traditional scheme of fragmented planning and governance by individual municipalities. This planning reform was formalised into an institute called IMEPLAN (Metropolitan Institute of Planning), the first of its kind in Mexico, and a rare example across Latin America. The central idea of IMEPLAN is to engage citizens, experts and municipalities in a participatory planning process at the metropolitan level through collaborative roundtables, workshops and an educational curriculum. The activities encourage all stakeholders to imagine, innovate and plan at a metropolitan scale. It is focused on reducing the negative impacts of unplanned urban development. Part of the initiative’s merits was that it overcame traditional political forces that undermine metropolitan governance. The collaborative approach to envisioning IMEPLAN resulted in the participation of 9 municipalities and the passage of legislation that established the metropolitan body.

Source: Research Reports from the Fourth Guangzhou International Award for Urban Innovation, 2019

4.4 Lessons learned

While most of the LAC entries deserve praise for their creativity and concern for issues of equity and resilience across all the five sustainability domains, the major lesson that comes out of a full review of the initiatives is the importance of

local government capacity to plan and implement its policies and programmes. Capacity to deliver matters, and innovation is as much about the object and design of an initiative as it is about the ways it is implemented.



*Tree planting,
Salvador, Brazil*

5 NORTH AMERICA

5.1 Regional urban innovation in context (2012-2018)

With over 80% of its population living in cities, North America (United States of America and Canada) is among the most urbanised regions of the world alongside Latin America and Europe. For most, if not all, of the two first decades of the 21st century, North American cities have largely enjoyed a renaissance. Twentieth century images of suburban flight, urban decline, crime and poverty have been replaced with images of revitalised urban centres, booming real estate sectors, and a return to urban parks and greenways. As important, the role of cities as key sites of cultural development, as well as innovation, to combat climate change and inequality has gained almost mainstream status. In 2011, the Economist Intelligence Unit, sponsored by Siemens, in its report, "US and Canada Green City Index Assessing the Environmental Performance of 27 major US and Canadian Cities", stated:

"Not surprisingly, the two countries' cities play a fundamental role in national life and help to perpetually redefine what it means to be American or Canadian. Cities are cultural and intellectual centers. They drive economic activity. And they are the main recipients of new ideas from immigrants...Cities are ideal laboratories for innovative responses to their countries' challenges, including environmental issues. It is well known that city life can exacerbate problems such as harmful greenhouse gas emissions or urban sprawl, but increasingly cities are also generating unique solutions to these challenges through effective local policies."

By 2018, the promise and economic dynamism of US and Canadian cities was strong and noteworthy. As noted by the OECD, the

metropolitan areas of Canada accounted for more than 60% of national Gross Domestic Product (GDP) in 2018. In the USA, metropolitan areas accounted for two-thirds of national GDP.

The sense of excitement around North America's urban renaissance, however, was and continues to be tempered by the effects of the financial crisis of 2008, the current and yet to be fully understood impacts of the Covid-19 pandemic, an ageing population, as well as the unresolved tension between economic growth and climate change adaptation imperatives. Even before the 2020 pandemic, McKinsey highlighted the dual sense of excitement and concern facing North American, but particularly US, cities:

"Large US cities are expected to generate more than 10 percent of global GDP growth in the next 15 years, a larger contribution than all of the large cities of other developed countries combined. So, although the burgeoning cities of Asia have seized the public imagination, US cities will remain an important part of the US and global growth story over coming decades... But US cities face turbulent times ahead as the economy strives to recover from the Great Recession. In the next few years, many cities are likely to grapple with the dampening impact of deleveraging on economic activity as the public sector and individuals attempt to pay off high debt levels, as well as persistently high pockets of unemployment. They also face longer-term headwinds including the aging of the population, which will require even more emphasis on boosting productivity, innovation, and skills. Policy makers and businesses need to find ways through these difficulties in order to play their part in the growth and renewal of the US economy."

5.2 Trends and challenges

While years of growth, wealth and education on the effects of climate change on urban landscapes have triggered investments in green infrastructure and innovative ways to reduce public and private sector greenhouse gas emissions, cities in the USA and Canada entered the second decade of the 21st century with a set of structural and fiscal challenges that could hamper greater progress on the climate adaptation front. Broadly, these challenges include the dependence of investments on the fiscal health and wealth of a city. If a city suffers fiscal strains, it is likely that needed investments for climate change adaptation may not occur. Politically, city leaders continue to struggle to articulate or resolve real and perceived trade-offs between policies that promote economic growth and mitigate the drivers of climate change. A second challenge includes the persistence of siloed municipal and state departments and the barriers that structure poses to much needed social, technical and ecologically integrated policies and initiatives. Progress retrofitting or adapting center cities to address climate change is also often offset by the sustained outward growth of the USA and Canadian urban footprint. While the majority of the USA and Canadian population is urban, most of it lives in low density, sprawling metropolitan regions.

Finally, prosperity in North American cities, particularly in the USA, has brought increasing socio-economic inequality. Rising land prices, the slow supply of affordable housing, uneven investments in the health and education services, together with the prevalence of unstable, low-wage service jobs, have combined to increase the gap between households with the lowest and highest earnings. The effects of this inequality have been identified and continue to be monitored, especially in 2020, as the unemployment rate for low-income wage earners has risen sharply due to the economic effects of the pandemic. Back in 2016, Holmes and Berube outlined just some of the downward spiral effects of inequality:

“Inequality may diminish the ability of schools to maintain mixed-income populations that produce better outcomes for low-income students. It may narrow the tax base from which municipalities raise the revenues needed to provide essential public services and weaken the collective political will to make those investments. And local inequality may raise the price of private sector goods and services for poor households, making it even more difficult for them to get by on their limited incomes.”

Credit: Dionisio Iemma



USA Skyline at Fan Pier, Boston, Massachusetts.

5.3 Opportunities and innovations

Over the course of the first four cycles of the Guangzhou International Award for Urban Innovation (Guangzhou Award), there were 40 submissions from large and small municipalities in the USA and Canada. While the number of submissions is considerably smaller than those from the Asia-Pacific region (280), Latin America (196) and Europe (152), their quality and capacity to inspire action on the part of cities from across the globe are noteworthy.

While the number of applications was relatively low compared to other regions, a review of the key words associated with the applications from the USA and Canada highlights the range of issues and concerns with which cities grappled during the first two decades of this century. As Figure 5.1 illustrates, the key words range from concerns about the environment and cultural

preservation to multiple manifestations of citizen engagement and involvement in urban processes. Unlike in regions like Latin America, where the key word analysis provides insights into the degree of priority given to one or more issues, for the North American region, the key word analysis suggests something else. The appearance and clustering of key words, such as “inclusive communities”, “cultural exchange”, “citizen involvement”, and “citizen participation” reflect the multiple, complex ways cities in North America see the place and role of citizens within larger processes of urban development and management. One could call this the “cultural turn” in local government in the USA and Canada. Interestingly, the only other region to elevate a range of concerns over citizen engagement is the Middle East / West Asia Region (ME/WA). (Table 5.1 and Figure 5.2)

Figure 5.1: Top 20 key words in submissions from North America (2012-2018)

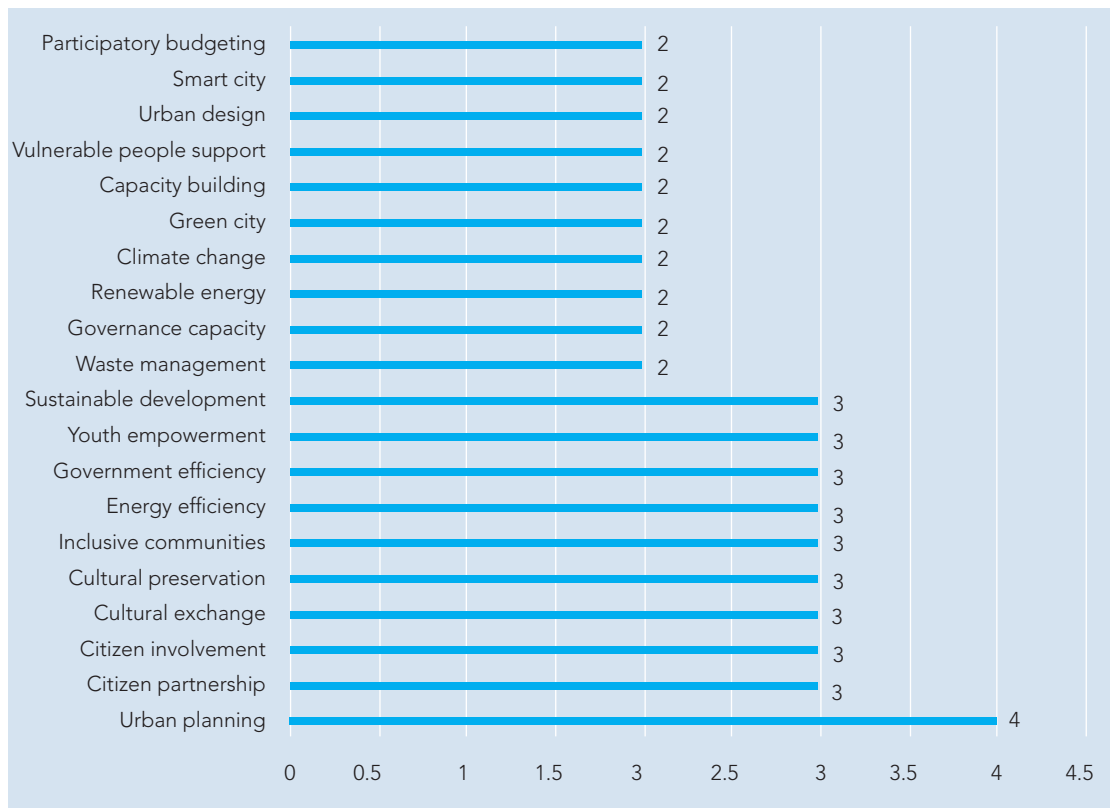
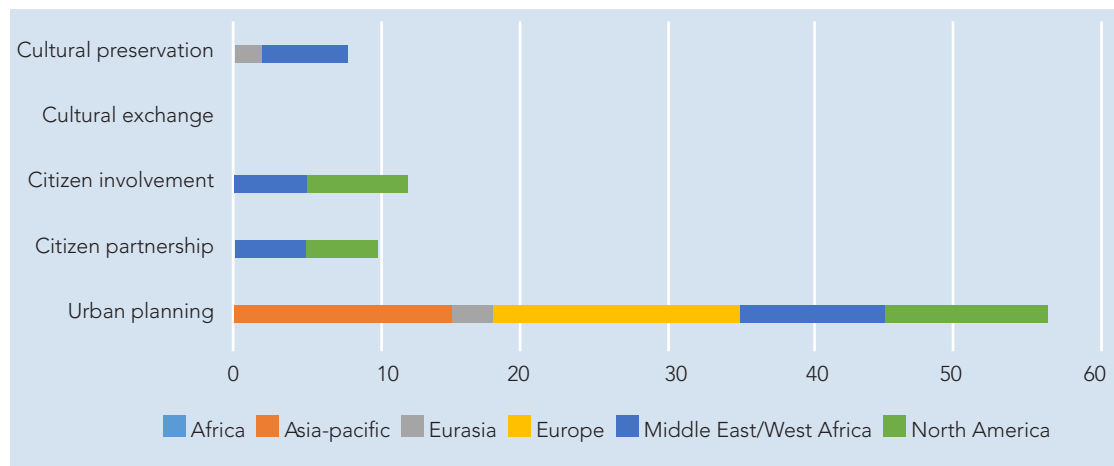


Table 5.1: Cross-regional count of the top 5 key words in submissions from North America

	Africa	Asia--pacific	Eurasia	Europe	Middle East / West Africa	Latin America & the Carribean
Urban planning	0	15	3	17	10	11
Citizen partnership	0	0	0	0	5	5
Citizen involvement	0	0	0	0	5	7
Cultural exchange	0	0	0	0	0	0
Cultural preservation	0	0	2	0	6	0

Figure 5.2: Cross-regional analysis of North America’s top 5 key words



Youth Lead the Change, Participatory Budgeting Boston, USA

Boston: Youth Lead the Change

An example of the “cultural turn” among the applications from North America comes from Boston, Massachusetts, in the United States. One of the five winners in the 2016 cycle, Boston won accolades for its “Youth Lead the Change: Youth Participatory Budgeting” initiative. This is ostensibly an initiative that tries to address three of the five sustainability domains (governance, social, economy). This is an initiative that promoted citizen engagement in civic matters by targeting the youth of Boston in the budgeting and planning process of the city. The programme not only signaled the city’s commitment to youth, but more importantly their legitimate role in policy dialogue and decision-making. This is not only an exercise in civics, but also empowerment and grassroots planning.

As the 2016 Jury noted, “The Jury feels that this initiative is highly relevant to the implementation of the New Urban Agenda to engage youth in policy dialogue, to increase youth engagement in civic affairs, and above all to cultivate lifelong commitment in local public affairs at a time when so many youths feel that no one listens to them.” It is important to note that the City of Boston presented the same project in 2014, but it did not make the shortlist. The Jury praised the city for resubmitting the application, as the two-year interim period between cycles allowed the city to demonstrate the effects and success of the programme.

Source: Report of Technical Committee, 2014 and 2016 Guangzhou International Award for Urban Innovation

Vector map of Repentigny, Quebec, Canada.



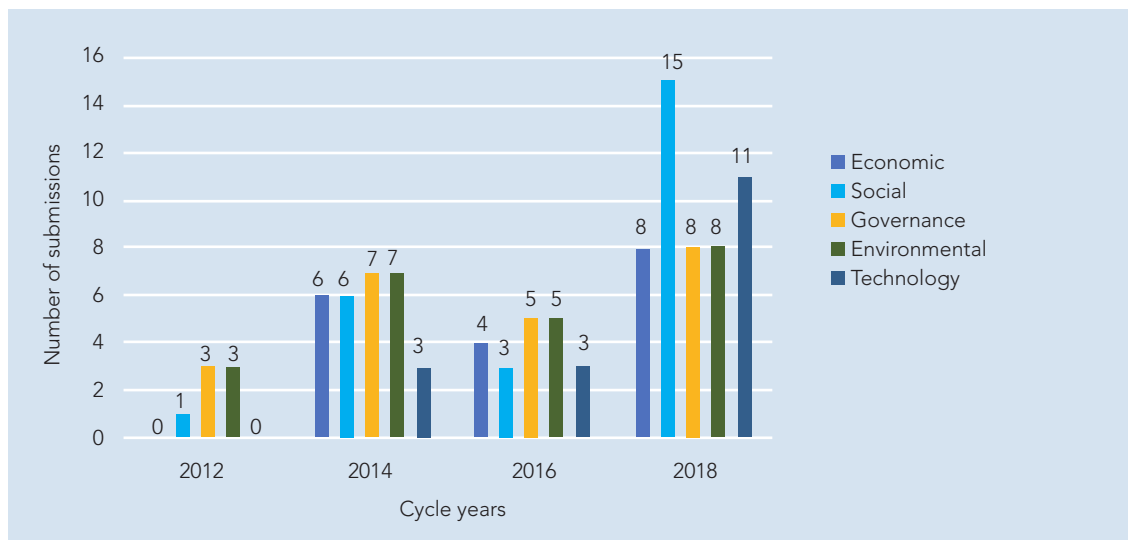
Cultural turn in Repentigny

An initiative that embodies the “cultural turn” in North America came from the Montreal suburb of Repentigny in Canada. Repentigny was shortlisted in 2018 because of its layered and multi-generational approach to civic and social services that aimed to ensure physically and mentally healthy citizens. A premise in the Repentigny proposal was that a strong community is a healthy, well-informed, and engaged community. To this end, “A City for All” won praise for launching three inter-twined programmes: 1. The Citizens and Family initiative, which connected citizens to municipal staff with information quickly and effectively; 2. The Youth Initiative, which was anchored by a multi-media lab housed in the city’s library, providing access to digital technologies focusing on creativity and expression; and 3. The Vulnerable People initiative, which provided assistance to citizens by telephone or the web linking to a wide range of social and community services.

Source: Research Reports from the Fourth Guangzhou International Award for Urban Innovation, 2019

The environment and sustainable urban development figured prominently in applications from the USA and Canada over the course of the first four cycles (Figure 5.3).

Figure 5.3: Domains according to cycle years



Visionary Vancouver

Vancouver in British Columbia was one of five winners in the first award in 2012. Vancouver's "Visionary Vancouver: Creating a Welcoming and Sustainable Place for All" was an initiative anchored by the city's "Greenest City 2020" plan, which linked past policies, sustainability principles and investments to current city needs and its future aspirations. The city's plan not only deliberately applied planning lessons from past mega projects, such as the staging of the 2010 Winter Olympics, but it did so with the intention of taking green building and planning to scale and holistically across the city.

For the city and its plan, achieving zero carbon, zero waste goals by retrofitting existing buildings and ensuring new ones aspired to LEED Platinum standards is as much about the technology as it is about key partnerships with local institutions and community engagement. As with other applications from Canada, Vancouver was applauded for the way it attempted to make its planning institutions and practices more inclusive. For the city, inclusivity meant prioritising public action and investment in ways that ensured affordable housing for many of its current and future residents. As noted by the jury, "While the city is seeking to achieve new environmental goals for becoming the Greenest City, it is fully aware that it cannot leave anybody behind and engages simultaneously in an affordable housing policy and strategy."

Source: Report of Technical Committee, 2012 Guangzhou International Award for Urban Innovation



Credit: BNFWork

New York City by night from Brooklyn

New York's Voluntary Local Review

In 2018, New York City in the United States was selected as one of the five finalists for its plan "Global Vision| Urban Action: New York City's Voluntary Local Review (VLR) of the Sustainable Development Goals (SDGs) Shows Local Progress for Global Action". New York City stood among applicants in the 2018 cycle for its strong, coherent and proactive embrace of the recently adopted SDGs. While the initiative is important for the ways in which it operationalises the monitoring and reporting of the city's performance within and across a set of policies and sectors in pursuit of the SDGs, it is perhaps as relevant or more for the stand it took to claim the role of local governments in promoting and achieving the SDGs. This is not only an affirmation of the way global indicators of sustainability are underpinned and conditioned by local action (or inaction), but also of the stature cities have in global debates around climate change and the policy interventions that are needed at the global, national and local levels. New York's VLR was also praised for the ways in which it streamlined and reconfigured the ways in which an array of city departments and units worked and communicated with one another.

Source: Report of Technical Committee, 2018 Guangzhou International Award for Urban Innovation

5.4 Lessons learned

The overarching lesson that emerges from a review of the submissions from the USA and Canada is that prosperity and good urban fortunes do not necessarily correct or induce equitable and environmentally sustainable outcomes. Nonetheless, there is ample proof that there is the political will and the institutional capacity to develop and implement plans and civic programmes that leave no one behind. Local

governments are proving that civic participation and engagement should and can include youth and the elderly. A more environmentally sustainable urban future is also possible. Cities can translate the complexities of the natural sciences, economic development goals, and emergent technologies into accessible, actionable plans.



Credit: Harry Beugeink

Antioquia Educational Parks for Youth won the Guangzhou Award, Antioquia, Columbia (2014 Guangzhou Award Winning City)



Science World and BC Place Stadium in Vancouver, Canada on September 9, 2013. Vancouver has been ranked the third most liveable city in the world for the second year in a row.

6 EUROPE

6.1 The European region in context

The review of the European region's submissions to the Guangzhou Award included submissions from the Eurasia region and Western Europe (the Russian Federation in Eurasia and a total of 14 European countries, namely, Austria, Belgium, Denmark, Estonia, Finland, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Spain, Sweden and the United Kingdom).

While the Russian Federation is an asymmetric federation, the European Union (EU) is a unique economic and political union between 27 EU countries that together cover much of Europe. The EU is a single market covering over 340 million people who, along with goods, services and money, can move around the EU almost as freely as within a single country. EU citizens can study, live, shop, work and retire in any EU country, and enjoy products from all over Europe. The European Union has its own legislature and executive, as well as an independent judiciary and a central bank. Its powers or competences derive from treaties.

6.1.1 Subsidiarity principles and EU funding principles and programmes

Key principles of subsidiarity and proportionality govern the exercise of the EU's competences. When the European Union does not have exclusive competence (i.e. not in matters of the customs union, monetary policy for the single currency the euro, for example), but rather in its shared or supporting competences, the principle of subsidiarity defines when it is preferable for action to be taken by the Union, rather than the member states at central, regional or local levels and vice-versa.

The implementation of the principle of subsidiarity has a direct bearing on urban development and the ability of the EU, its member states and its cities to address major challenges. Examples of non-exclusive competences (i.e. "shared competences") affecting cities are transport, economic and social cohesion, energy and the environment,



Credit: Alexandra Lande

European Parliament offices in Brussels

whereby the EU is able to initiate legislation and policies covering the entire EU. "Shared competences" have enabled the EU to earmark parts of its multi-annual budgets for these key issues, which has led to the creation of some of the most well-known EU funding programmes, such as the European Structural and Investment Funds for EU regions and cities and EU legislation in relation to air quality, water, energy efficiency in buildings and landfill waste management, to cite just a few examples.

A unique set of ambitious standards and tailored and supportive funding budgets for areas of shared competence across the EU 27 member states are designed to assist all of its members to enhance economic, social and environmental objectives concomitantly. This also positively impacts on the functioning of the EU's single market and on EU citizens' lives and livelihoods and promotes social cohesion.

6.1.2 European cities and climate change

In the last few years, international targets, such as the Sustainable Development Goals and the Paris Agreement of 2018, have spawned European commitments to address the world's most fundamental challenge: climate change. European legislation, in areas where the EU has shared legal competence, has continued to set new legal and policy benchmarks in order to not only achieve the Paris Agreement but go even further. The European Green Deal, adopted in 2019, aims to make Europe the world's first climate neutral continent by 2050 and to help EU citizens to produce, move, consume and live in a more environmentally responsible way while

leaving no individual or region behind. One of the key actions of this policy is the new EU rule banning certain single-use plastics. Such policies will have huge ramifications on urban living in the EU's 27 member states.

Many European cities are making it their political mission to de-carbon and green-up using their respective administrative and statutory powers. As a result, European cities are getting closer to achieving the target of 100% renewable energy use.

In October 2020, the European Commission presented its plan to reduce EU greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. This level of ambition for the next decade will put the EU on a balanced pathway to reaching climate neutrality by 2050. In order to fulfil its commitments on climate change and biodiversity, Europe needs to accelerate implementation.

However, many of the region's ambitions are being impacted by public health concerns. 2020 will go down in history books for being the first year of the 21st century where the world experienced a global pandemic: COVID-19. National lockdowns, city-wide lockdowns, and local urban lockdowns have placed urban dwellers in the region and across the world at the forefront of the extreme limitations on personal freedom and mobility. The economic and social consequences of the pandemic have also been crippling cities. The COVID-19 pandemic will undoubtedly impact the way countries and cities will address social, economic and environmental issues going forward.



Credit: Halfpoint

People with placards and posters on global strike for climate change.

6.2 Regional trends and challenges

Europe, particularly Western Europe, is the third most urbanised region of the world after North America and Latin America. Detailed information about urbanisation trends in Europe are encapsulated, in many ways, by information regarding the 27 EU member states provided by Eurostat. Eurostat data highlights that in 2016, cities hosted 59% of the EU's total population, accounted for 68% of the EU's gross domestic product (GDP) and provided 62% of the EU's employment. This also means that 41% of the EU's population is non-urban and that specific policies are needed to address territorial imbalances.

Despite the economic recovery that has been taking place following the 2008-2009 global financial crisis, some territories in Europe are still struggling to catch up. Moreover, at the sub-national level, local and regional governments are still finding it difficult to recover the level of investment they had before the financial crisis, which is hindering their capacity to respond to new challenges. These new challenges include mitigation of climate change, impacts of new technologies, rising social demands — such as the housing crisis and increasing precariousness — or adaptation to an ageing population in most countries.

Some countries are also having to deal with an influx of migrants and refugees from Syria and other places, which has strained their ability to provide social services. Other countries are adopting nationalistic, anti-immigration policies that are negatively impacting efforts to promote social cohesion and integration in the region. The exit of Britain from the European Union in 2021 may also introduce new challenges, whose effects are yet to be felt.

6.2.1 Future urban trends

The urban development of European cities is regularly monitored by European institutions and research institutions. The latest 2019 report of the European Joint Research Centre (JRC) identifies future trends and challenges facing cities in Europe.

While the urban population will continue to grow across most of the globe, high population growth (between 25-50% by 2050) in the EU will occur mostly in medium-sized capitals, such as in Vienna, Budapest, Prague, or large regional cities in France as well as in Munich and Bologna. Some cities, such

as Brussels, Luxembourg and Stockholm, could expect even higher growth.

However, overall across the EU, European cities are learning to cope with new challenges related to declining and ageing populations. Population loss exceeding 25% will occur mainly in small and less populated cities in Eastern Germany, Spain, Latvia, Lithuania and Bulgaria and ageing populations are expected to be large in most EU cities.

Other noteworthy trends include:

- Most European cities are expected to grow spatially and cities will have to increasingly recognise the importance of optimising how their public spaces are designed and used.
- An ageing European population will require further adaptation of infrastructure and services.
- Cities will increasingly apply new technologies and innovations across a wide range of sectors, from transport and mobility to citizen engagement. These technologies will need to work together seamlessly and be inclusive in order to benefit all citizens.
- The dominance of personal cars could be drastically reduced in favour of more efficient and environmental-friendly public transport, and shared and active mobility. Demand for transport could also be reduced through new working patterns where an increasing number of people work from home.
- Cities will need to cope with existing issues, such as providing affordable housing to an increasingly varied population, ensuring inclusiveness and integration among its communities, and reducing environmental impacts.
- While cities are frontrunners in fighting climate change, they are also where the effects of energy poverty and water scarcity, to mention but a few issues, will be particularly evident.
- Citizen engagement in policy making is growing and should become more prevalent in the future. New forms of urban governance are already being tested in many cities, and the importance of networks bringing cities together is expected to increase.

6.3 Challenges and opportunities

European cities are uniquely equipped to tackle various challenges, including:

- **Education and cultural diversity:** the availability of a highly educated workforce, a large and diverse population, a certain level of autonomy and financial means, and openness to technological advancements and innovation, to name but a few, may offer ways to relieve the pressures cities face.
- **Urban greening:** The greening of European cities has increased by 38% over the last 25 years, with 44% of Europe's urban population currently living within 300 metres of a public park. Well-designed public and green spaces can have a multitude of benefits: improving air quality, providing microclimate regulation, and enhancing safety, social integration and public health.
- **Process of co-creation:** The co-creation of strategies to tackle urban challenges is vital for their success. Citizens can play a crucial role, often providing new perspectives and solutions. Novel technologies can significantly improve citizen participation, but there is a need to better understand and systematise current and emerging practices.
- **Innovation:** Cities play a central role in innovation dynamics – geographical proximity of stakeholders and multidisciplinary interaction enable innovation. The variety of approaches to innovation enhances the identity of cities, their traditions and their cultural heritage.

Although capital cities and metropolitan areas remain major drivers of creativity and innovation, favourable conditions can also be found in smaller cities.

- **Resilience:** A resilient city assesses, plans and acts to prepare for and respond to all kinds of hazards – sudden and slow onset, expected and unexpected. These include uncontrolled urbanisation, climate change and political instability, among others.
- **Social and economic vulnerabilities:** Understanding these is essential to formulate actions for resilience adapted to local needs, with local communities playing a central role. Cities have an important role to play in pushing forward societal change.
- **New technologies:** Cities are increasingly embracing innovation and novel technologies, and, thanks to the concentration of people, ideas and resources, are leading the way towards solutions to global challenges beyond their own boundaries.
- Other challenges are **fighting exclusion, climate change and integrating migrants**, which will have to be tackled in Europe's cities and metropolitan areas.
- **Managing pandemics:** As a new challenge emerging since early the year 2020, the management of pandemics in cities and regions appears crucial for the future of global social equity.

6.4 Regional qualitative analysis of submissions

This review is based on the submissions of the participating cities from Eurasia and Europe ("European Region") between 2012 and 2018. A total of 266 cases from 24 countries in Eurasia and Europe were included in the review, comprising a total of 43 qualifying candidate cities were assessed as deserving cities. Of these deserving cities, there were 8 shortlisted cities and 4 award winning cities.

The main objective of this quantitative and qualitative analysis is to identify the lessons learned from the initiatives that are of added value to other cities and metropolitan regions, regionally and globally. In addition to the five domains of urban sustainability, which are social, economic, environmental, governance and technological aspects, the analysis also looks at the connection to the Sustainable Development Goals (SDGs) and the New Urban Agenda.

The qualitative analysis elaborates on the lessons learned related to the 5 domains of urban

sustainability and refers to the main key words; furthermore, it identifies the emerging trends, describes the issues and challenges, discusses the contribution of these innovations as well as mentions their connection to the SDGs.

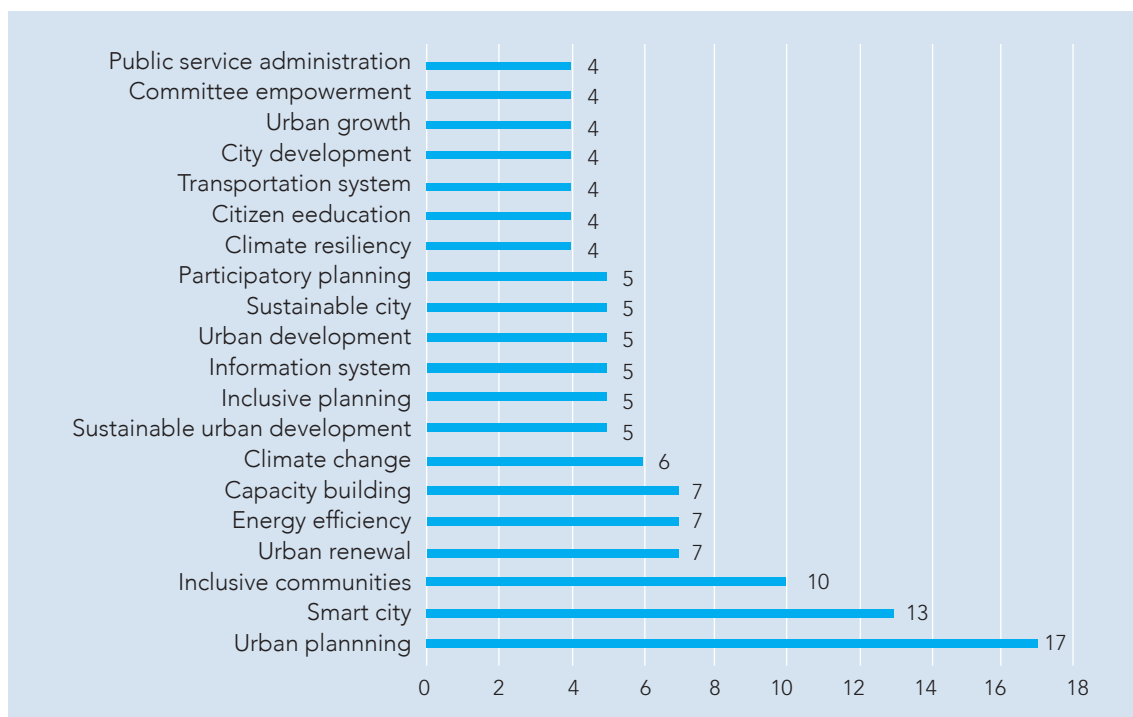
The conclusion of the review offers recommendations for the Guangzhou Award going forward.

As described by the key word analysis of the submissions across the 4 cycles of the Guangzhou Award since 2012, the analysis concluded with a top 5 key word cross-regional analysis for Europe.

Prior to this qualitative analysis, a quantitative analysis identified a list of main key words out of the 43 applications. From Eurasia, the following key words were identified:

- Information system
- Childhood development
- Government efficiency

Figure 6.1: Top 20 key words in submissions from Europe (2012-2018)





Credit: Shutterstock

Mezitli women producers market, Mezitli, Turkey (2018 Guangzhou Award Winning City)

For Europe, the following 5 key words were identified as most important:

- Urban planning
- Smart city
- Inclusive communities
- Urban renewal
- Energy efficiency

The dominance of the key words “urban planning”, “smart city”, “inclusive communities”, “urban renewal” and “energy efficiency” reflects quite precisely the current challenges and problems cities in Europe are facing. Many deserving cities have been struggling with urban planning and balanced urban development over

the last few years, which is demonstrated in the lessons learned below, as well as in the broad question of involvement and participation of citizens – referred to as inclusive communities.

6.4.1 Main domains in the 4 cycles (quantitative analysis)

The graphs below are aimed at identifying which main domains the applications from the European region are categorised under during the 4 cycles. Figure 6.3 highlights the cycle years according to the domains and Figure 6.4 highlights the 5 domains according to the years.

Figure 6.2: Cross-regional analysis of the top 5 key words

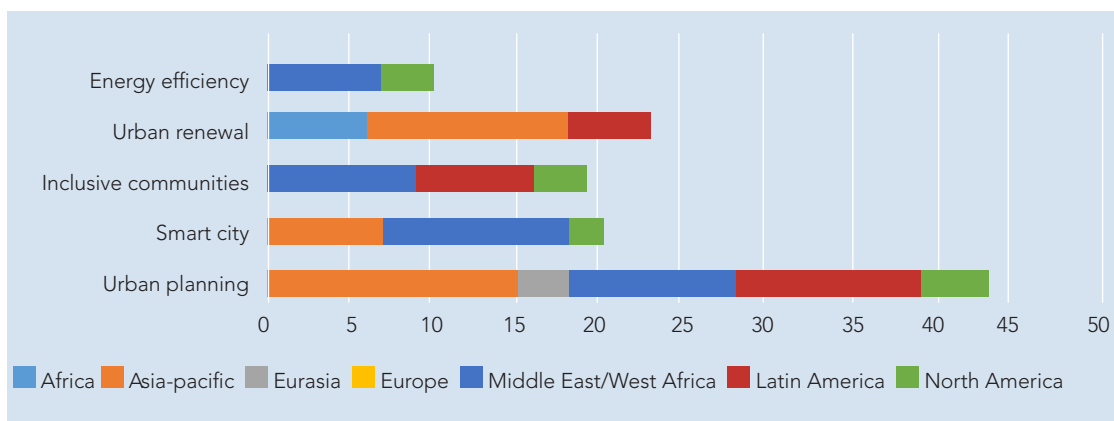


Table 6.1: Comparison of Europe's top 5 key words with other regions

	AFRICA	ASIA-PACIFIC	EURASIA	MIDDLE EAST & WEST ASIA	LATIN AMERICA & THE CARIBBEAN	NORTH AMERICA
Urban planning	0	15	3	10	11	4
Smart city	0	7	0	11	0	2
Inclusive communities	0	0	0	9	7	3
Urban renewal	6	12	0	0	5	0
Energy efficiency	0	0	0	7	0	3

Figure 6.3: Europe's submissions in the four cycle years by domains

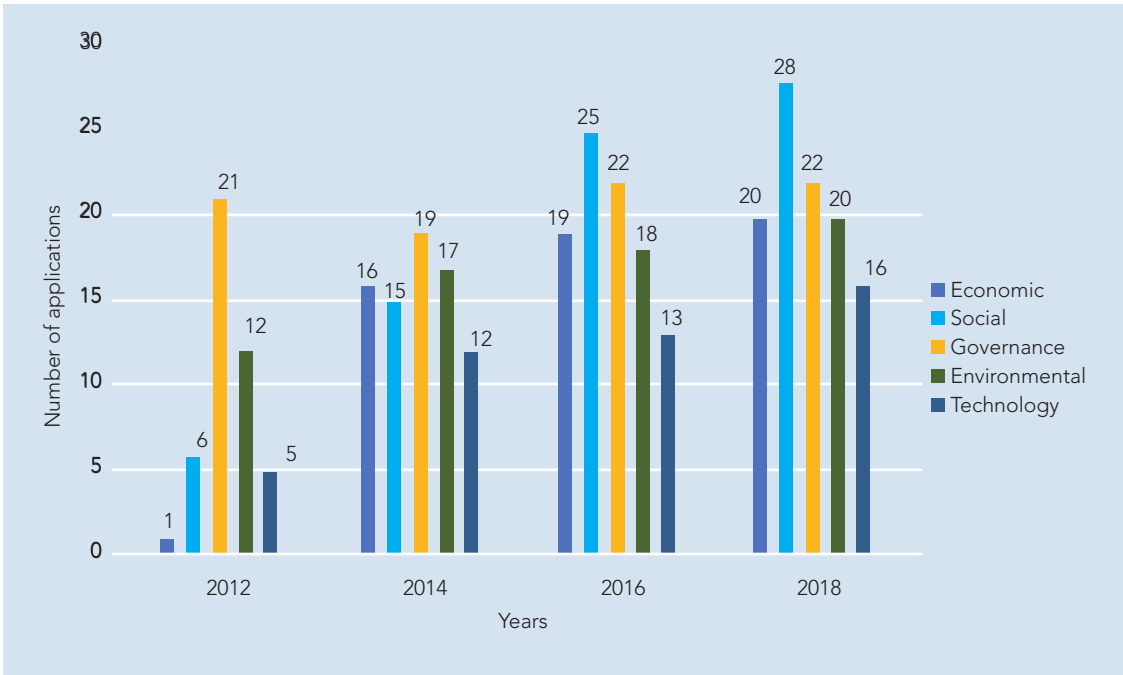
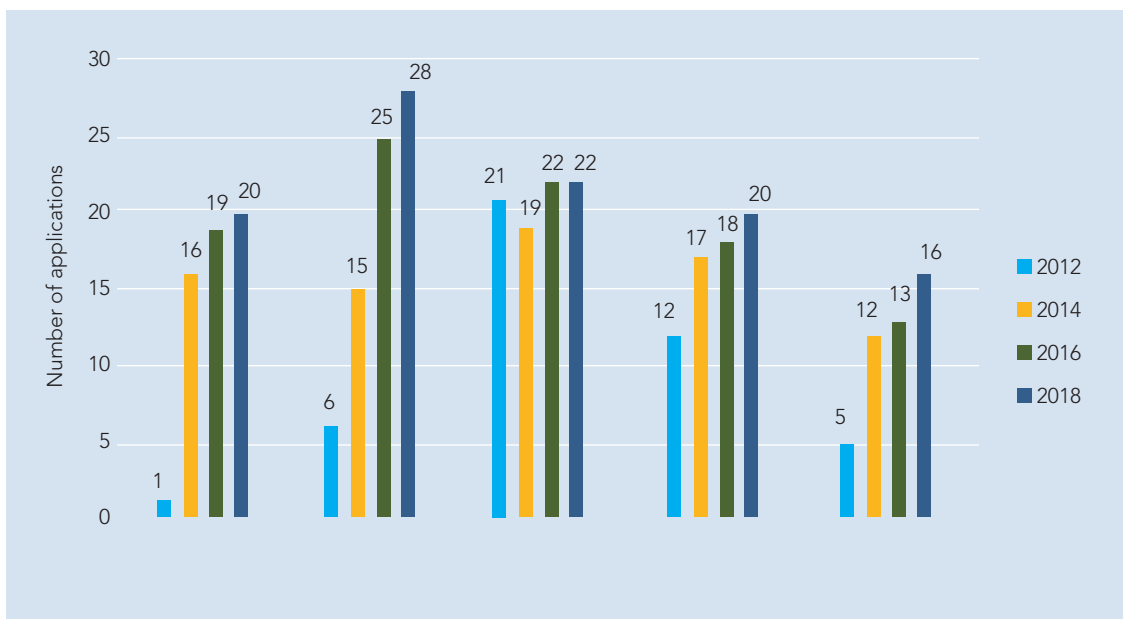


Figure 6.4: Europe's submissions by cycle years and domains



6.5 Lessons learned from the Guangzhou Award since 2012

The quantitative analysis was done using a template that included lessons learned, key words, and contribution to innovation. What can we learn from the 43 deserving cities for the Guangzhou Awards?

6.5.1 Social inclusion is becoming an emerging trend in urban development

First, the social dimension is a very relevant topic when it comes to urban innovation in the European region, especially in the time period before 2012. Indeed, the Eurozone multi-year debt crisis that has been taking place in the European Union since the end of 2009 influenced

profoundly the social dimension in European cities. This disruptive, severe financial crisis led to a general crisis in European governments and cities and in social conditions in general.

A return to economic growth and improved structural deficits happened only in mid-July 2014. However, the financial crisis has had significant adverse economic and labour market effects, including high unemployment rates. The European crisis was first a financial crisis but later became a trust crisis as people lost faith in elected politicians and governments. The overall mistrust motivated municipalities to transform their structure and foster a more participatory process in urban development. This became



StartWien - Das Jugendcollege starts with 1000 course places for refugees not required to attend school

StartWien: Helping migrants to integrate in Vienna

StartWien is a programme for migrants to help them settle in and to facilitate their integration in Vienna. It consists of a number of measures for migrants to find their way around this Austrian city, to live independently, and to participate in society as well as in the economic, cultural, and political life of the city as quickly as possible. The programme has several strategies: first, it reaches the target groups immediately after their arrival in Vienna. (The project has been developed in close cooperation with the Immigration Department of the City of Vienna.) Second, it considers the individual needs of each migrant and the diversity of the target group in cooperation with the course providers. German language courses are continuously adapted to meet the needs of the migrants. Third, it introduces an instrument for the quick and simple exchange of information between the authorities, organisations, and institutions that are responsible for migrants during the first few years after their arrival in Vienna. Fourth, it reduces unnecessary contact with authorities and appointments with advice centres by providing new migrants with relevant information in their mother tongues quickly and efficiently.

Source: Report of Technical Committee, 2012 Guangzhou International Award for Urban Innovation

evident in several innovation proposals, such as in Sabadell, with an “Open City Council” proposing strong public transparency, including a Municipal Action Plan (PAM) with participation and trust of citizens and companies. A similar entry in 2012 was the Citilab Cornellà, the first European citizen laboratory – an open innovation lab investing in cultural change towards innovation in citizenship.

Second, between 2007 and 2011, large numbers of migrants from the Middle East and Africa crossed between Turkey and Greece, leading Greece and the European Border Protection agency Frontex to strengthen border controls. The premises of the well-known European migrant crisis (which peaked in 2016), motivated cities to develop integration programmes, such as the Winning City proposal of Vienna in 2012. Vienna adopted a very innovative, integrated process based on an education booklet, workshops with experts, and teaching material – which led to better and sustainable integration of new migrants into the social, cultural and political life of Vienna.

In Eurasia, the social focus is different: cities are innovating in developing programmes for low-income, disabled persons of retirement age. For example, the 2014 deserving city of Rostov introduced large technological infrastructure adapted for older people. It remains essential for Eurasian cities to capitalise on their intercultural assets, as was demonstrated in the shortlisted city of Kazan in 2018. Other deserving cities, such as Ufa or Krasnoyarsk, opted to develop top-down initiatives, including an Information Centre (Emergency Centre) for persons in danger or a “Mayors Labour Unit” supported by students.

Third, the combination of lack of trust and the impending climate crisis motivates cities to develop innovative programmes regarding mobility, climate resilience, urban or slum upgrading and social justice.

For example, in 2012-2014, the deserving city of Tallinn, an emerging green capital, introduced a free public transport policy, which is aimed at strengthening social cohesiveness by granting urban mobility to all. This successful operation has made urban traffic smoother, lowered air pollution and increased the visibility of Tallinn.

Free rides for residents of Tallinn

Based on a legally non-binding local referendum in March 2012, in which 75% of residents of Estonia’s capital supported free rides on the municipal transport network, the Tallinn City Council decided on September 20, 2012, to give a 100% discount to Tallinn residents in the vehicles of the municipal public transport company. This was decided for one simple reason: even though the subsidisation level of public transport in Tallinn had already reached the level of 70%, the the price of the ticket was still a big concern for passengers. The price tag of free rides on public transport for Tallinners was 12 million euros per annum. Resources used to provide this free service to the inhabitants came from e-funding received (with surplus) from the increase in the number of taxpayers, combined with an increase in car parking tariffs from 2014.

Source: Report of Technical Committee, 2012 Guangzhou International Award for Urban Innovation



Credit: OmaPhoto

Free public transport in Tallinn, Estonia



Parade with traditional costumes in the streets of Kazan, Tartastan, Russia.

Kazan's innovative social and economic development

Kazan is one of the most culturally diverse cities in Russia. Historically, ethnic, cultural, and religious diversity in the city has created positive social relations among its citizens, including good neighbourliness, religious tolerance, inter-ethnic harmony, friendship and cooperation. The municipal programme for strengthening civil harmony is adopted every five years in order to create a favourable atmosphere to maintain inter-ethnic and inter-religious harmony between the mainly Christian and Muslim residents of the city. These programmes are aimed at the implementation of a balanced national policy in Kazan, the preservation of the state languages and other languages of the citizens, including the Tatar language, which are shaping attitudes of tolerance and civil unity.

The social effects of the implementation of the programme are to maintain social stability, inter-ethnic and inter-faith peace and harmony, cultural identity and to meet the social and cultural needs of Kazan's citizens. These are expressed through: increasing the effectiveness of the use of ethno-cultural potential; preventing ethnic and religious conflicts; provision of the necessary conditions for the preservation of inter-faith harmony and civil unity; shaping an attitude of tolerance and preventing xenophobia in society; provision of the necessary conditions for the preservation and development of the language and culture of the citizens; and implementing a system of measures to enhance the social and cultural adaptation and integration of migrants.

Source: Research Reports from the Fourth Guangzhou International Award for Urban Innovation, 2019

Social cohesion programmes co-funded by the European Union were also part of applications, focusing on active participation methodologies, support to local projects and partnerships, promotion of local base networks, and most important – reconciling the vision of decision-makers with the ideas and visions of the citizens. An excellent initiative was introduced by Lisbon in 2014, with its local development strategy for neighbourhoods, as well as the initiative presented by Barcelona in 2016, with its ancient vertical slum upgrading, involving a high number of multi-stakeholders and funders, such as citizens, experts, universities, the local administration and multilateral organisations.

Fourth, the social justice dimension related to the implementation of the SDGs is gaining traction among municipalities. This corresponds to the

central message of the New Urban Agenda – “leave no-one behind”. As a concept of fair and just relations between the individual and society, and measured by the distribution of wealth, opportunities for personal activity, and social privileges, the concept of social justice is combined with the localisation of SDGs through multi-stakeholder partnerships – as was excellently demonstrated by the shortlisted initiative of the Dutch city of Utrecht in 2018. With the creation of the local foundation Utrecht4GlobalGoal, the initiative was able to develop local SDG indicators to measure and track the city's SDG performance, implement concrete actions and results, and develop a model for “healthy urban living for everyone” – a city in which health is central in everything, where healthy citizens live in healthy environments and work in a healthy economy.

The Oudegracht (old canal) and the Vismarkt street are part of the historic center of Utrecht, the fourth largest city in the Netherlands.



Utrecht: Localising the SDGs through multi-stakeholder partnerships

When the Sustainable Development Goals (SDGs) were initiated, Utrecht City Council confirmed its commitment by declaring Utrecht a “Global Goals City.” Facing growing urbanisation and sustainability challenges, Utrecht municipality views the SDGs as an opportunity to guide its mission to achieve healthy urban living for everyone. The approach to localise the SDGs focuses on two areas: activating and cooperating with local stakeholders and connecting local initiatives and expertise with international developments.

To boost local SDG action and reach a broader audience, Utrecht municipality cooperates with the local foundation, Utrecht4GlobalGoals. To stimulate responsible business conduct and investments to accelerate SDG achievements, the municipality partners with local businesses. Together, these public and private partners aim to reach the 350.000 citizens of Utrecht and inspire and facilitate them to take local and global action for the SDGs. Furthermore, Utrecht municipality is developing local SDG indicators to measure and track its own SDG performance.

While the motto of “think global, act local” clearly applies to Utrecht’s SDG approach, it also makes sense to “think local, act global.” Utrecht sees its role, and that of other cities, as building the bridges that enable two-way traffic between local and international action on the SDGs. Only by supporting other cities and regions in their efforts to achieve the goals, especially those cities and regions with fewer resources, will the SDGs be achievable on a global scale.

Source: Research Reports from the Fourth Guangzhou International Award for Urban Innovation, 2019

Contribution to innovation

Over the past decade, social inclusion has increasingly become a key aspect in urban development in the European region. In an era of profound economic and social crisis, citizens’ involvement and participation have become tools for successful urban transformation and development. Latest initiatives include Living Labs for citizens, which are geared towards more integrated and balanced urban policies.

Recent trends of co-design and co-creation processes within the urban realm – e.g. product or service design processes including citizens from the beginning to the end – is a real trend and visible globally. Innovative processes – either top-down or bottom-up – with clear potential for building on existing policies may play a central role in future urbanisation processes.

A real challenge in the European region will be to keep social cohesion functioning in a balanced way.

6.5.2 Economic development can only be achieved in an integrated way

It has been a decade since the financial crisis erupted and changed the world in 2008-2009. After a short recovery, several European member states succumbed to the sovereign debt crisis. The combined crises had catastrophic consequences for economic growth, investment, employment and the fiscal position of many EU member states. The European Union engaged in short-term fire-fighting measures such as bailouts to save banks and help stressed sovereigns, while at the same time reforming the recognised inadequacies of the existing frameworks. After signs of moderate recovery in 2014, the EU economy returned in 2017 to a state similar to that of before the crisis.

Many efforts have been made to improve resilience in the European Union: these have included improving the stability of the financial sector, strengthening economic governance, creating a safety net for sovereigns in distress and carrying out structural reforms, particularly in the countries most affected.

What can be learned from the deserving city initiatives?

First, this unstable and fragmented economic environment was not favourable for urban innovation: indeed, few deserving cities developed or introduced initiatives to the Guangzhou Award.

Financial recovery initiatives have to be combined with other actions – urban planning, urban development, use of new technologies as smart solutions, knowledge capture and development, waste management considering waste as a resource, or developing circular economy concepts.

Urban development activities – referred to as the key word “urban planning” – such as the creation of a new coherent mixed-use district in the deserving city initiative in 2012 of Warsaw may unlock financial recovery, as its intention was to accommodate a substantial portion of

new residents as well as employment centres and services within one of the biggest real estate operations in Europe at the beginning of the 21st century.

Another notable example in 2012 was the strategic masterplan of the shortlisted city of Perm in Russia, who presented its strategic masterplan for city transformation as an action plan for the next 12 years, including guidelines and a zoning plan. It was the intention at that time to launch a new urban planning policy as a comprehensive ideological base for the city policy of urban development regulation and planning. However, this strategic plan has been contested in recent years, and experimented in regular public and professionals’ meetings and discussions, polemic and educational articles in the local and federal press. Nevertheless, this strategic masterplan was a considerable effort at developing a novel process to be replicated in other Russian cities.



Credit: Maykova Galina

Panoramic view of the city of Perm, Russia

Perm’s transition from a centrally planned industrial city to a liberal creative community

Perm, like many cities in Russia, was a centrally planned industrial city, with an orthogonal grid and non-descriptive architecture. The initiative to develop a strategic vision of city development (masterplan) for Perm in 2012 responded to the socio-economic transformation and industrial modernisation affecting all Russian cities by envisaging a physical environment capable of reflecting the city’s changing spatial needs. In order to develop this new urban form, urban policy and regulations needed to be updated. The masterplan idea was to provide the common ground necessary for all stakeholders to be part of the city’s transformation.

Perm is seeking to reinvent itself as a regional cultural and knowledge capital and to update its heavy industrial image. The process of urban transformation was particularly important in realising these ambitions, sending a clear signal that Perm is a progressive, modern city, open to new ideas in culture, business, education, industry and governance. This way Perm can genuinely become a great place to live, start a business, go to university and raise a family.

Perm’s residents have willing to take up the following challenges: to stop the outflow of people from the city; to keep young people in the city; to increase the competitiveness of Perm; to improve the overall quality of life in Perm; to resolve transport problems caused by increase in mobility; and to balance the provision of social and infrastructural needs of the population within the rationally used space.

Source: Report of the Technical Committee, 2012 Guangzhou International Award for Urban Innovation

As an interesting initiative combining infrastructure and services towards knowledge capitalisation is the deserving city of Birmingham, which in 2012 introduced the Public Service Academy as a “one entry service point” for the municipal government and the research institution, the University of Birmingham – with the intention to add capacity, test out new ideas and improve local public services as a platform. This capitalisation of knowledge can be considered a value-added strategy creating financial synergies.

Another integrated and remarkable initiative towards the best regional circular economy concept for cities, companies and citizens is city of Tampere, shortlisted in 2016. Tampere Regional Solid Waste Management is owned by 17 municipalities and managed by a non-for-profit company responsible for the resilient infrastructure and is an open platform for private enterprises.

Tampere: Model of best regional circular economy concept for cities, companies and citizens

Tampere Regional Solid Waste Management, a non-profit company, is owned by 17 municipalities in Finland and provides waste management services. The success of the company is based on managing the whole value chain. The concept provides an open platform for private enterprises. The partners have developed advanced and innovative solutions that have been enabling the development of new types of waste management based on a circular economy. The benefit of the concept is ensuring cost-efficient waste management and circular economy solutions, continuous development and avoiding overlapping investments.

The basis for the good development is the Polluter Pays principle. The customers’ waste fee covers the whole waste management and the new investments. The other principle is source separation. The clean materials are providing good opportunities for developing recovery. Source separation starts at homes and continuous motivation, information, advice and communication are needed.

Source: Report of the Technical Committee, 2016 Guangzhou International Award for Urban Innovation



Credit: Target Renewables Ltd

Keeping construction of an anaerobic digester (AD) going is never entirely easy but it's particularly difficult in times of COVID-19 lockdown — especially when the project team and equipment providers are scattered around Europe and the UK.

Economic development can also be achieved through initiating circular economy services, a relevant activity, as demonstrated in the shortlisted city of Brussels and its initiative to develop a slaughterhouse into an urban farm as part of the transformation process of an urban district. Although the initiative was co-funded by the European Regional Development Fund (ERDF) more than 45 traders in total now have a stand in this space inspired by the covered markets in Southern Europe, (total investment for Foodmet with Urban Farm was 18,000,000 euros), This initiative is remarkable in that it has a different real estate approach, including multi-level governance and stakeholder involvement: the general public is offered a very wide variety of products in the market at especially low prices. Fruit, vegetables, cheese, bread, olives, herbs and a variety of other specialities can now be found alongside meat and fish. Fresh products are also prepared and can be sampled in the bistro and restaurant, which will soon be opening its doors to the public. In addition to the advantages to be had by consumers, the traders benefit from fixed positions in a clean environment protected from adverse weather conditions. The project has both health and logistical advantages: loading bays and cold rooms allow the traders to stock their shelves in compliance with the cold chain.

Contribution to innovation

Despite the unstable economic environment in last two decades, urban innovation in Europe has been taking place, especially in the combination of diverse urban development products and with the support of co-funding instruments delivered by the European Union or federal states.

Recent successful initiatives indicate a combined, multi-level leverage system of actions, which can be considered as the new trends of urban innovation in this economic domain.

6.5.3 Climate resilience and environmental justice are the new trends in urban innovation

Compared to other regions, European citizens generally do enjoy a good quality of life. EU policies and legislation have led to economic growth and improvements in living conditions and environmental standards in the past. However, well-being and living standards of some groups, such as the elderly, people living in poverty and those with lower education or with limited employment prospects, tend to be lower. Air pollution, noise and extreme temperatures are amongst the most critical environmental issues due to the impacts they have on the health of European citizens. As we are at the beginning of the global climate crisis, urban innovation is an appropriate tool to mitigate climate change and environmental destruction.

What can be learned from the deserving city initiatives?

From the 43 deserving cities, 10 cities, including 1 winning city, 3 shortlisted cities, were focusing explicitly on the environmental challenges

and developing urban innovations within the environmental domain.

Firstly, low emission mobility and public transport are a recognised urban innovation topic when it comes to development of provision of free public transport for local residents, linking economic needs and environmental-friendly solutions. Car-sharing systems combined with a framework for transport planning and urban development, together with the provision of street space, was an acknowledged initiative from the deserving city of Bremen in 2012 and 2014. A similar urban innovation idea was developed by the deserving city of Milan with its Sustainable Mobility Plan that combined restriction measures with technological solutions.

Secondly, a more profound urban transformation with energy transition is proposed in several deserving and shortlisted cities: the shortlisted city of Salerno introduced in 2012 the initiative of the City Energy Plan with a Sustainability Energy Action Plan, focusing on renewable energy, rubbish and recycle, energy and CO₂ savings. Furthermore, the relevant initiative of the shortlisted city of Hamburg, with its International Building Exhibition IBA 2014 and its Climate Protection Concept Renewable Wilhelmsburg, demonstrated the need to focus on local energy resources to supply renewable energy while considerably increasing the efficiency of local energy consumption. A dedicated limited liability company was used as an excellent governance structure, together with a working group supervising the implementation.

Other relevant initiatives were the Climate Smart Hyllie in 2014 from the deserving city of Malmö, which is aiming to be climate-neutral by 2030, and the climate-neutral and climate-adapted roadmap of the deserving city of Berlin in 2016.

A very relevant initiative was introduced 2014 from the shortlisted city of Linköping with the Linköping Carbon Neutral 2025 – the long-term climate goal to transform Linköping into a carbon-neutral community by 2025, which is translated into most municipal policy documents and a full integrated information system, including all relevant aspects of the 2025 policy. The combination of the long-term approach, a highly innovative driving force, broad-based collaboration and political consensus make Linköping a leading municipality in climate and environmental challenges.

Thirdly, the best urban innovation can be found in the climate resilience neighbourhood model of the winning city of Copenhagen in 2016. This innovative model for climate adaptation – with citizens' involvement, the rethinking and optimisation of urban space in order to manage rainwater in green solutions on the surface – was demonstrated as an excellent example of urban innovation. The project is part of the City of Copenhagen's strategy for district and urban renewal and makes the city future-proof with



Nyhavn,
Copenhagen

this green climate change adaptation solution at the urban level. Copenhagen demonstrates the perfect integrated approach of a bottom-up and top-down integrated participatory process towards climate adaptation.

Contribution to innovation

In the next decade, cities will face intense and exacerbated climate challenge, putting citizens and infrastructure at risk. Considerable changes in the European region will occur simply because cities and communities have to deal with those challenges. More urban innovation is expected to take place in this related environmental domain.

6.5.4 Urban governance may be considered as one of the key solutions towards better cities

Good urban governance is crucial due to the complexity and interdependency of policies in urban areas. In 2007, the Leipzig Charter marked a new era in European urban policy, laying down key principles to advance sustainable urban development by promoting an integrated and participatory approach and its related governance. A decade after the signing of the Leipzig Charter, various forms of multi-level and multi-stakeholder cooperation mechanisms were implemented, including vertical (between government levels) and/or horizontal (between sectors) agreements and contracts. In this respect, the state mainly acts as a partner or enabler for metropolitan areas, regions and functional urban areas, providing frameworks for cooperation, funding and urban development strategies. Cities emerge as strong actors, taking part in numerous and various governance arrangements and cross-border cooperation. The adoption of the new Leipzig Charter 2020 during the German presidency of the Council of the European Union will reinforce this orientation.

What can be learned from the deserving city initiatives?

Firstly, urban governance is everywhere – almost all deserving cities are integrating aspects of urban governance in their initiatives in the form of citizen engagement and promoting transparency and accountability of public services. In relation to urban planning and territorial development, urban governance can help when administrative municipal borders do not correspond with the functional reality of urban areas; cities often have to deal with the reality of broader functional urban areas or larger agglomerations while facing global problems. Urban governance can also include social inclusion aspects, as mentioned earlier.

Secondly, urban governance relates to all relevant aspects of urban planning and urban development, including energy saving, housing, knowledge sharing, SDG implementation, climate action, gender balance, and landscape awareness. However, good urban governance is often a balancing act, an interplay between government, business and civil society in which the core values need careful and timely attention.

Good examples can be derived from 8 deserving cities, including 2 shortlisted cities. Düsseldorf, with its joint action for a strong local community, developed an approach of urban development, EKISO, through participatory partnerships in 2012, including sustainable district upgrade, and cross-cutting participation between property owners, business traders, committed residents and other partners. Salerno included strong and active collaboration between university and research entities as well as the city in 2012, allowing researchers to help policy makers to better define energy alternatives. Brussels, with its CLTB innovative and participatory home ownership model, is providing sustainable housing solutions to low-income families, while

the organisation is governed democratically by the holders of usage rights, neighbourhood representatives and public administration. Lisbon is adopting a different approach: a coordination team in the body for housing and social cohesion develops a model of co-management between the city council and local associations in order to act and manage the territory, change paradigms and promote the management model from the bottom up, allowing citizen participation in local development initiatives. Vienna had a community-driven approach, “Wien mag’s Wissen”, involving all staff levels and a process of alignment within the overall strategy of the city administration that involves an efficient public administration, staff expertise, and value-based management, involvement and engagement. Utrecht understood the importance of establishing a local foundation as a framework of action, whereby the municipality facilitates local and global public-private partnerships for the SDGs and cooperates with local businesses, knowledge institutions, and citizens. And finally, Umea – with its Gendered City Bus Tour, an innovative way of showing how working towards gender equality takes form in a city – is demonstrating successful progress on gender equality, and creating awareness on the importance of a cohesive understanding of gendered power structures concerning all urban planning aspects in the city.

Thirdly, good governance can pave the way to very successful innovation and solutions. Two

highlights are the winning cities of Copenhagen and Milan. Indeed, the climate resilient model of Copenhagen can be considered highly innovative, as a local partnership was created, consisting of citizens living in the neighbourhood, such as “board of residents” living around urban places subject to climate change impacts. The close involvement of citizens in climate questions and solutions is the key to the success of the project. Milan, the winning city of 2018, introduced the Milan Food Policy as an innovative framework for making the urban food system more sustainable. This policy initiative, which falls under the mayor’s office and directly under the mandate of the first vice mayor, is developing a Milan Urban Food Policy Pact, a Metropolitan Food Council and a monitoring framework. It is an exemplary way of thinking beyond the silos. The activities of the municipality were registered with public agencies, social actors and the private sector.

Contribution to innovation

Urban governance arrangements become especially important when administrative municipal borders do not correspond with the functional reality of urban areas. Cities often have to deal with the reality of broader functional urban areas or larger agglomerations while facing global problems – this is the case of Copenhagen, where climate action does not end at the border of the city, as well as in Milan, which involved the great metropolitan area for the Food Policy Act.

Credit: Federico Fermeglia



Farmer's market in downtown Milan, Italy.



A man talks on a phone while cycling along a city centre street.

As a trend, it can be said that local governments are increasingly using online platforms to include citizens in the urban governance process. Such e-participation can increase citizen engagement and promote the transparency and accountability of public services.

6.5.5 Intelligent cities and territories will profoundly shape urbanisation trends in the future

The emergence of smart city concepts in the past decade has transformed substantially the way and how we work and live in cities. As the concept integrates information and communication technology (ICT), connects various physical devices to the information and technology network in order to optimise the efficiency of city operations and services and connect to citizens, it seems logical to include technology in a broad sense to urban services, to enhance their quality, performance and interactivity, to reduce costs and resource consumption and to increase contact between citizens and government. In a time of pandemics, a smart city may therefore be more prepared to respond to challenges than one with a simple “transactional” relationship with its citizens.

What can be learned from the deserving city initiatives?

Smart City has been identified as a key word in the European region’s submissions. The use of technologies has been integrated in almost all leading urban innovation initiatives. Most relevant initiatives focused on mobility, such as public transport access and car-sharing, energy consumption and environmental management, but also citizens labs or city labs.

As an example, the deserving city of Cornellà

introduced the first European Citizen Laboratory as an institution dedicated to facilitating universal access to innovation activities accessible to each citizen – the idea of a “cultural change” towards innovation was in 2012 perceived as a change in the lifestyle of people. A more recent innovation from Spain in 2018 was the smartCATALONIA initiative, a government-led initiative pursuing public-private alliances for developing projects with 50 cities and 350 private partners. The initiative integrates the public budget (both from the government and municipalities) and private investments in the form of solution development for initial testing; it is the first region to establish a programme to further integrate economic and urban development of its communities looking at initiatives of territorial innovation. The process leads to a movement of facilitating the linking of the elements of the innovation ecosystem in Catalonia, such as municipalities, industry, research and technology centres, academia and talent, but also testing, researching, prototyping and deploying urban solutions and new technologies to improve cities.

The 2014 award winning city of Bristol, “Smart City Bristol”, delivered under the auspices of the Covenant of Mayors, is an integrated solution led by Bristol City Council working with other organisations outside of Bristol with a focus on public-private-people partnerships, and championing innovative solutions through the smart deployment of ICT and digital connectivity. The initiative is meant as a collaborative programme between the public sector, business and the community. The development of a city-level open data platform was designed to facilitate information sharing between city stakeholders and citizens in a more collaborative manner. Individual projects were delivered under the smart city agenda and the Green Capital programme have been brought together under the overarching objective of increasing the city’s resilience to challenges posed by a large urban area.

Contribution to innovation

It is expected that the Smart City concept will develop further over the next decade. More innovation related to data management and increase of artificial intelligence (AI) will dominate urban innovation. Green IoT (energy reduction) has been clearly one of the research topics at the new HorizonEurope research programme (towards New Green Deal). It is also expected that the EV Infrastructure Expansion will continue, as more cities and metropolitan areas are looking forward to decarbonise their infrastructure and reduce pollution: progress is accelerating fast. Cities across the globe, including Rome, Paris, Madrid, and Mexico City, have declared plans to ban diesel and petrol cars from their centres, and London has announced the Ultra-Low Emissions Zone (ULEZ).



7 CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

7.1 A question of going to scale

The Guangzhou International Award for Urban Innovation testifies to the importance of the localisation of the Sustainable Development Goals (SDGs) and other global agendas. Urban concerns and challenges are experienced on the ground and local actions are needed to resolve them and create a sustainable future where no one is left behind.

Furthermore, the award has developed and fine-tuned a robust review process for the submissions over the years that involves a two-stage assessment (technical committee and jury) with clear guiding principles and criteria. The shortlisted cities appear to embrace many of the UCLG/Metropolis sustainability action features of an integrated, evidence-based and context-specific approach. Perhaps the single most important observation that could be made is that an overwhelming majority of the shortlisted initiatives are replicable in different contexts and many of them are being brought to scale. This is most encouraging as the potential of going to scale is critical to the validity of this unique approach to urban innovation.

The Guangzhou Award is a remarkable process of knowledge-sharing on a global scale; the engagement of very diverse communities and stakeholders in peer-to-peer learning processes involving city leaders has been implemented in the past eight years in an impressive way. Initiatives taken towards implementation on the ground have clearly shown benefits to all candidates and the urban community, especially towards the implementation of the SDGs.

What is clearly lacking, however, is how to bring the wealth of knowledge, expertise and experience harvested by the Guangzhou Award and other like-minded recognition systems to all cities and regions on a global and meaningful scale. The award has demonstrated and validated a robust, practical and feasible way forward to

integrate recognition of excellence with learning, sharing, capacity-building and leadership development. In this aspect the Guangzhou Award system is unique and first among equals. The key issue is how to devise a coordinated institutional framework for accelerating learning and exchange at the global, regional and local levels. Despite the combined efforts of UCLG, Metropolis and the plethora of other institutions engaged in knowledge-sharing and the exchange of lessons learned from urban experience, the top most priority identified by cities and regions that have participated in the four cycles of the Guangzhou Award remains capacity-building. In this context, capacity-building, as mentioned in the first chapter of this report, must be seen as a *“process of developing and strengthening the skills, instincts, abilities, processes and resources that organisations and communities need to survive, adapt, and thrive in a fast-changing world.”* In other words, capacity-building is about innovation.

This is a clarion call for all those who share the conviction that the attainment of global agendas will ultimately depend on implementation at the local level to radically increase their efforts in a coordinated way to bring lessons learned from innovative and successful practices to cities and communities in a systematic and concerted manner and, more importantly, to see this as a continuous learning and capacity-building process.

If the attainment of global agendas truly depends on local action, then a fundamental challenge remains advocacy and outreach at a massive scale. Until people, communities and neighbourhoods are convinced of change, change will continue to encounter resistance, be it passive or active. Education is key and, going forward, the co-founder and co-sponsors of the Guangzhou Award need to explore how they can partner with educational institutions, from primary to tertiary, to bring the lessons learned from urban

innovation to the forefront of their respective curricula and teaching materials.

Innovation implies change; and change does not always fall into the comfort zone of institutions. Mobilising inhabitants and stakeholders appears as a common and strategic tool to ensure co-ownership and broad-based buy-in for change. A key takeaway from the four cycles of the Guangzhou Award is that urban innovation often implies going beyond what is commonly called “public or community participation”. It often involves new ways of engaging people and communities by providing them with tangible stakes in decision-making. This is notably the case with participatory budgeting where the inhabitants of a city get to decide how to spend a portion of the capital expenditure budget in return for respecting a certain number of “rules of the game” that are designed to ensure the success of participatory decision making. Social and economic inclusion and environmental sustainability will thus continue to remain key concerns of cities in the 21st century. Urban innovations will determine how these concerns are addressed.

The need for collaboration and cooperation within and between cities and regions will become even more important in the coming years as countries and regions grapple with the impending climate crisis and the public

health and economic crises precipitated by the coronavirus pandemic. Furthermore, as inequality and unemployment levels rise as a result of the pandemic, there will be a greater need to build the resilience of urban communities and implement policies that promote equity and inclusion, particularly among vulnerable groups, especially women and youth. Lack of trust in government institutions as a result of the pandemic and the impending climate crisis will motivate cities to develop innovative programmes regarding public health, mobility, climate resilience, poverty reduction and social justice.

Participatory local governance mechanisms and civic engagement have proved to be vital in ensuring the sustainability of projects aimed at improving the quality of urban life, as demonstrated by many of the winning and shortlisted entries in the four award cycles. The use of information and communication technology to solve urban problems (“smart cities”) has also emerged as a key feature in cities, particularly in the areas of service provision and economic development. Recent trends of co-design and co-creation processes within the urban realm and innovative processes – either top-down or bottom-up – with clear potential for building on existing policies may play a central role in future urbanisation processes.



Credit: P. Cruciat

Visitors enjoy the view of the Canary Wharf skyscrapers from Greenwich park in London

7.2 Recommendations regarding the Guangzhou Award process and methodology

7.2.1 Gaps

There are a few very important areas in sustainable urban development that do not appear prominently in the submissions throughout the four cycles of the Guangzhou Award. These areas include: affordable housing, financing, and monitoring/evaluation of change. Other issues that have not been addressed adequately are capacity building and context-specific innovations.

7.2.2 Identify and mobilise partners in the field of affordable housing

Besides a few submissions that made it to the list of 45 deserving initiatives, there have been few examples of how cities and regions have tackled the persistent and critical issue of “leaving no one behind”. The issue of affordable housing, or housing for low-income groups, remains critical to the attainment of global sustainable development agendas. Indeed, access to decent housing, basic infrastructure and services is a precondition to and a social determinant of health and well-being. While there have been very prominent and replicable initiatives that have addressed this issue through local economic development and empowerment, there are very few documented examples of cities and regions adopting housing policies that make a difference. The Guangzhou Award needs to identify and mobilise partners working in this field to fill this important gap.

7.2.3 Encourage submissions focused on innovative and sustainable financing tools

Funding is a key dimension of governmental capacity, yet few applications identify or explain well the sources and means of finance for their projects and/or initiatives. Future applications should flag the importance of this dimension and reward those applicants that can document it clearly and in a way that is useful to all cities and regions. Financial sustainability also ensures that projects do not end just because a source of funding has been depleted.

Similarly, a challenge across the globe is the broader topic of municipal fiscal health and finances. Sustainable urban development needs stable and adequate financing. The Guangzhou Award should consider either a category or other

ways to encourage applications focused on innovative and sustainable financing tools.

7.2.4 Future submissions should include monitoring and evaluation processes and impact measurement

Many of the initiatives and projects seek to effect deep social, economic and environmental change. Structural change is not only challenging, but slow. The Guangzhou Award has an opportunity to require and reward applications that demonstrate effective monitoring and documentation of change within the scope of their initiatives. In a given moment in time, change may seem minimal. While the scope of change is important, it is also important to demonstrate that a city is monitoring the effects of its own policies. Future submissions should include evidence on monitoring and evaluation processes and impact measurement.

The Guangzhou Award should consider positioning itself as a partner with applicants/cities in the monitoring of the effects triggered by the innovations. This is a contribution that would go beyond the current (and very good) use of the study tours and peer-review visits.

7.2.5 Cities need to focus more on the How, not the What

Despite the insistence of the Guangzhou Award Secretariat and its thought leader – the Guangzhou Institute for Urban Innovation – on the need to focus on the “how” versus the “what”, cities and regions submitting to the Guangzhou Award continue to focus on what they have achieved rather than how. The 15 shortlisted cities for each cycle benefit from a “dry run” where they present their initiatives to a panel of experts and receive on-the-spot feedback on how to improve their presentations before presenting their respective initiatives to the public and the members of the jury. All of the authors of this report have participated in this process and acknowledge its critical usefulness to the objective of peer-learning and exchange.

The challenge going forward is to how to strengthen this dimension in the submission process. It is recommended that each submitting city or region include:



Guangzhou international financial center at night

- A summary roadmap of their respective solutions and sustainability actions, highlighting the timeline of actions and outcomes.
- More explicit articulation of sustainability action features, approaches and strategies, highlighting knowledge adaptation/transfers, local innovation and experimentation.

7.2.6 Facilitate city-to-city learning

“How to” knowledge is helpful to city leaders, especially those in small and medium-sized cities who must move quickly to plan for and manage the challenges of rapid urbanisation with scarce resources. It is commendable that the Guangzhou Award convenes and organises seminars and study tours for the submission cities and publishes the interventions in reports and newsletters for wider dissemination. Building sustainable cities that work requires investment choices where peer-to-peer learning can be a powerful enabler for rethinking models of development.

Study tours constitute another area where the ‘How to’ knowledge can be made more useful to city leaders, especially in small and medium-sized cities, which must move quickly to plan for and manage the challenges of rapid urbanisation with scarce resources. As part of the cross-city learning process, it is recommended that the Guangzhou Awards consider the following:

- Including in its innovation knowledge base information about the continual progress of the submission interventions after the awards cycle, say at three-year intervals, to better understand the sustainability of implementation. This could be partially addressed by asking shortlisted cities of each cycle to “commit” themselves to hosting a study tour or peer-review visit after three years.
- An additional follow-on focus would be to further understand the replication-learning process as a result of the Guangzhou Awards city-to-city learning.
- Ensure there is a national or state enabling framework that gives local governments the autonomy to adapt and reform their bureaucracies so that they are fit for purpose.
- Create spaces for inter-governmental exchange on best practices and lessons learned from bureaucratic reforms and methods to promote inter- and intra-institutional collaboration.
- Encourage formal and informal institutional arrangements for metropolitan level governance and planning.
- Encourage close monitoring and documentation of the impacts and benefits of collaborative policy initiatives.
- Facilitate capacity-building actions, such as planning-training programmes involving different partners and urban innovation actors.
- Foster leadership development based on the peer-to-peer experience of the Guangzhou Award. Leadership development, as demonstrated in the Guangzhou Award, may be the start of training and change management, motivating leadership to change and move outside their normal comfort zone.

7.2.7 Place more emphasis on health and well-being

This four-cycle review was undertaken contemporaneously with the outbreak of the COVID-19 pandemic. A plethora of webinars and virtual meetings were held to discuss what needs to be changed in terms of urban governance and urban development as a result of the ravages

caused by the pandemic. The conclusions of many of these virtual meetings and writings are very clear. The emerging consensus is that we need to re-think how we plan and manage our cities and regions and to refocus urbanism on health and well-being. Key areas that need to be revisited include:

- How we work, where we work and the relationship with where we live;
- How we produce and consume and the need to make our supply chains for essentials, such as food, more resilient and more self-reliant;
- How to accommodate “smart working” in the future and what that implies for urban development, including the fact that “smart working” tends to reduce the customer flow to the retail, catering and hospitality sectors;
- How to prevent major interruptions and health hazards associated with the industrial and agro-industrial supply chain;
- How to plan and design public spaces that are greener, less dominated by traffic and transit, more user-friendly and accessible to all.

7.2.8 Ensure that urban innovations do not exacerbate inequalities

Local governments are increasingly using online platforms to include citizens in the urban governance process. Such e-participation can increase citizen engagement and promote the transparency and accountability of public services. It is expected that the Smart City concept will develop further over the next decade. More innovation related to data management and increased use of artificial intelligence (AI) will dominate urban innovation.

However, not everyone has access to digital technology, and this digital divide may impact who benefits from e-participation. Some context-specific issues have been brought to the fore in the four cycles of the award. However, the single most overriding issue worldwide in the current cycle is the fact that the COVID-19 crisis has revealed the underbelly of social, economic and spatial inequalities. Reports also indicate that women were disproportionately affected by the pandemic in terms of employment and personal safety. More women than men lost their jobs or businesses during this difficult time. Women isolated at home also experienced more domestic violence, a trend that has been observed and reported in all regions. An unfortunate consequence of the pandemic might be that efforts to promote gender equality might be reversed. It is therefore imperative that efforts to include women in urban planning processes and in economic activities be intensified in the post-pandemic period.

The youth bulge in Africa and the Middle East could be the cause of political instability in the future if more is not done to integrate young people into the economy by providing them with job opportunities. In Europe and other industrialised regions, a largely ageing population poses challenges in terms of infrastructure and

social services. These challenges must be met to ensure that cities respond to citizens’ needs.

These, and other observations, reinforce the need for urban innovation, creativity, flexibility and responsiveness. They underscore the importance of innovation as a critical means for devising more equitable, just, healthy, safe and resilient cities and regions.

7.2.9 Simplify the submission process to increase participation of non-Anglophone countries

Language appears to be barrier to the award submission process. African participation has been relatively low, with some countries not having the capacity to translate their (French, Arabic and Portuguese) submissions into English, which disadvantages them in the review process. Given the significance of the region in global urban growth and development, it would be useful to intervene purposefully into expanding the region’s contribution through greater promotion and partnering to create awareness. Efforts must continue to be made to expand the communication and dissemination of the results of the Guangzhou Awards in the region.

The quality of the applications from the Middle East and Africa has also been somewhat weaker than other more developed regions, which leads to the likely discounting of many interesting innovations that are not well presented. This may be attributed to a combination of issues, including language (English may be a challenge), municipal capacity, and the availability of support.

One way in which the quality of applications might be enhanced is through the offering of simplified electronic forms that can offer clear field specifications, instructions, and guidance on completion to reduce human interpretation and error. This could also help to make the submissions more consistent.

As online translation services become more efficient and common, it may also be possible to evolve to where applicants could be enabled to apply in some of the more widespread language alternatives to English (e.g., French, Portuguese and Arabic).

Many of the innovations from the Middle East and Africa region are not necessarily of high-tech products or brand new offerings, but sometimes of innovating operational models (such as Ethiopia’s BRT system) or institutional approaches. The competition review process may need to more consistently take account of this in assessing applications, and that may require some contextual appreciation.

There is also a need to create geographical categories that are consistent geographically with internationally recognised categories. For example, many studies categorising the region include sub-Saharan Africa, North Africa and the Middle East, while excluding or including Turkey and Afghanistan. A more consistent geographical delineation will ensure that longitudinal and cross-regional analysis of trends and dynamics is more easily and consistently possible.



