

## **Sustainable Urban Development – Main Challenges and Good Practices in Europe and China**

### **Joint Report**

China Center for Urban Development (CCUD)

Chengcheng WU

Yue LIU

Yun LI

Jinjing ZHANG

Peiqi ZHU

Joint Programming Initiative Urban Europe (JPI UE)

Manfred HORVAT

Margit NOLL

Johannes RIEGLER

Magnus BRINK

Katarina SCHYLBERG

May 2018

## Executive Summary

In recent years, the global perception of urban areas has changed. An urban area was often described as a place where societal challenges were manifested in space in terms of pollution, congestion, health risks, etc. It is now described as a place where the concentration of socio-economic activities is perceived as an asset for transformative change. The rapid and unprecedented scale of urbanisation, despite challenges that it brought about, can mainly be understood as a process of opportunities to facilitate urban transitions.

### **SDGs – A Global Reference for Sustainable Urban Development**

On a global scale, the transformative power of urbanisation for tackling societal challenges has been recognised and expressed intensively in current global policies, agendas and guidelines. In *the 2030 Agenda for Sustainable Development*, the United Nations outlines 17 Sustainable Development Goals (SDGs) which “will stimulate action over the next 15 years in areas of critical importance for humanity and the planet”<sup>1</sup>. The importance of urban areas for achieving the SDGs becomes evident when looking at the roles they are assigned in the document - *the SDG 11 Sustainable Cities and Communities* is entirely dedicated to urbanisation but also the remaining 16 SDGs have an urban dimension. The 17 SDGs and their targets clearly underline the importance of sustainable urban development for the future of humanity and the planet, and 90 out of the 169 indicators encompass urban areas.

The SDG 11 expresses the need to discuss sustainable urbanisation and urban development in politics, policy and practice for the first time at global level. Connected to the SDG 11, UN-Habitat published *the New Urban Agenda* which was signed by almost all member states. *The New Urban Agenda* illustrates a shared vision of urbanisation that can contribute to a sustainable future offering benefits and opportunities for all. It marks a paradigm shift identifying sustainable urban development as part of the solution to societal challenges. The SDG 11 and *the New Urban Agenda* provide a global reference framework for goals and visions of sustainable pathways with global consensus of importance.

The visions and pathways mentioned above represent a paradigm shift from understanding urbanization as an undesirable dynamic resulting in environmental and social challenges to a process with transformative power<sup>2</sup>. However, approaches towards such sustainable transformation are manifold and diverse, which include a broad range of initiatives, activities,

---

<sup>1</sup> United Nations (2015:3) Transforming our world: The 2030 Agenda for Sustainable Development.

<sup>2</sup> UN-Habitat (2015) National Urban Policy: A Guiding Framework.

programs, projects, methodologies and stakeholders. To realise the above-mentioned urban transitions, the multiplicity of approaches in urban policy as well as research and innovation require navigation across sectoral silos, approaches, and technologies<sup>3</sup>. At the same time awareness is needed on where and how they add up and increase the transformative potential and where conflicting strategies, approaches and implementations cause dilemmas and might limit the transformative power.

### **Benefitting from International Exchange**

For supporting urban transitions globally, partnerships with strong commitments and cooperation on all scales are required, from local to global. Bilateral and multilateral partnerships between organisations, cities, programmes and initiatives can enhance international support for effective and targeted capacity building. The exchange and co-creation of knowledge, technologies and experiences regarding sustainable city services and infrastructures offer promising prospects for addressing issues in urban planning, environment, health, water, transport, ICT, hazards, resilience and disaster risk reduction, and improving the well-being of citizens.

In this sense, the Joint Programming Initiative Urban Europe (hereinafter referred to as the “JPI UE”) and the China Center for Urban Development (hereinafter referred to as the “CCUD”) have collaborated since 2016, with a focus on exchanging knowledge, establishing a dialogue on strategic level and bundling expertise of European and Chinese experts. JPI UE is a European challenge-driven research and innovation initiative. Since 2012, it has funded more than 70 projects in the area of sustainable and liveable urban areas with strong emphasis on Urban Living Labs, experimentation and science-policy cooperation. CCUD is a public institution under the National Development and Reform Commission (NDRC), specialising in policy research and consultancy on urbanization and urban development. Since its establishment in 1998, it has been conducting policy research and providing consulting services at ministerial and local levels and carrying out international cooperative projects. Given the fields of action and work of JPI UE and CCUD, the established and successful partnership between the two organisations contribute to localising and implementing the SDGs and *the New Urban Agenda* in Europe and China by exchanging knowledge, stimulating discussions and raising awareness of good practices concerning urban transitions.

---

<sup>3</sup> Bylund, J. (2016) Connecting the dots by obstacles? Friction and traction ahead for the SRIA urban transitions pathway.

## **Innovative Approaches and Case Studies from Europe and China**

In this report, five thematic areas of sustainable urban development are selected to present European and Chinese cases. For each thematic area, a research and innovation project funded by JPI UE and an innovative project in Chinese cities are used as cases to underline good practices and highlight innovative approaches conducive to achieving SDGs. The following are overviews of the good practices by thematic area.

### ***Sustainable Urban Planning and Urban Renewal***

People centred urban planning and the renewal of the existing housing stock towards energy efficiency and for enhancing the quality of life of the residents are key to sustainable urban development. To this end, the case study of the project **SubUrbanLab** in Europe showcases how co-design in urban living labs and participatory planning can modernize and socially uplift underprivileged neighbourhoods. The development of superblocks in many urban areas in China hinders walkability. The large-scale renewal project in **Nanchong Prefecture (Sichuan Province)** in China illustrates how sustainable urban planning and renewal can contribute to the human scale developments. This was achieved by incorporating the micro-scale into the existing macro-scale development, which increases walkability, thus contributing to sustainable and liveable urban areas.

### ***Energy Efficiency and Low-carbon Development***

Urban areas have great potential to reduce greenhouse gas emissions and increase energy efficiency, thus contributing to actions of climate change mitigation. This does not only require renewable energy technologies or innovative energy management but also changing user behaviours. In this sense, the European project **me<sup>2</sup>** aims at creating a community platform to increase awareness of the energy consumption among citizens and investigate ways to change user behaviours towards greater energy efficiency. The me<sup>2</sup> concept was tested in two Urban Living Labs in Amsterdam (the Netherlands) and Lisbon (Portugal). In China, efforts have been made at the strategic level and/or on the city scale. Several Chinese ministries have promoted sustainable urban development by launching eco-cities policies, standards and pilot programmes for low-carbon development. A large number of cities in China have started pilot projects and made efforts to achieve low carbon development. One of the best cases in China, **Hangzhou City**, followed an ambitious plan to become a low-carbon city and a role model for sustainable development in the country.

### ***Transport and Mobility***

Efforts are made worldwide to improve transport and mobility systems with the aim to provide safe access for all people to public places, goods, services and economic opportunities. While at the same time reduce the environmental footprint of transport and mobility. Tackling the transport and mobility issue has a significant impact on other (socio-) economic and environmental aspects as well as on the quality of life and the wellbeing of the urban populations. For this thematic area, multi-modal mobility systems and new mobility services were investigated to deal with problems of commuting and congestion. The European case study, the JPI UE project **Smart Commuting** analysed mobility behaviours of commuters in three countries to identify the need for and potential of new mobility services. Results of this project have not only been reflected in policies but are also translated into business solutions with transportation companies. The case of **Shanghai** in China illustrates how different smart mobility services can enhance the multimodal transport and mobility system where busses, cars, trains and bikes play an essential role. Through an innovative app solution, information of different transport and mobility modes are connected, and door-to-door travel planning is offered in a multi-modal way.

### ***Sharing Economy***

With the development of digital technologies and an upcoming tendency among urban populations towards sharing instead of owning, the sharing economy has become a reality. Sharing economy provides potential to challenge established routines and sharing services are influencing urban life socially, environmentally and economically. In Europe and China, new sharing schemes are significantly influencing urban life, consumption patterns and have the potential to greatly contribute to sustainable urban development. The JPI UE project **E4-share** developed models for flexible, efficient and economic viable electric car-sharing systems. The models were developed by comparing different car-sharing models, determining user incentives, and investigating supporting policy frameworks using the case of the City of Vienna.

In China, the sharing economy has seen significant growth recently. As part of sharing economy, the **Public Bicycle** program was first launched in Hangzhou in 2008 as a seamless feeder service to public transit throughout the city in light of growing traffic congestion and environmental concerns. With the development of innovative technologies and the emergence

of new sharing schemes and business models, the dock-less **bike sharing** in China has seen a rapid expansion since 2015. Today, bike sharing is especially relevant for solving the issue of “the last mile”, the distance between public transportation and people’s final destination , and contributes to the reduction of car dependency and greenhouse gas emissions.

### ***Smart Urban Governance***

To effectively design and implement strategies for sustainable urban development, new collaborative governance processes are required, which involve private and public stakeholders. Enabling technologies, big data and real time responses offer new ways for innovative and smart urban governance and management. Multiple information sources are nowadays easily available for urban decision making, while appropriate tools and methods are required to consolidate and synthesise them. The JPI UE project **UrbanData2Decide** processed datasets from social media and open data to develop a decision support system for urban governance. At the same time digital technologies and social media support participatory urban planning and governance. Another JPI UE project **Incubators for Public Space** embedded such new technologies in participatory planning processes to allow all stakeholders to contribute to urban planning. The project implemented Urban Living Labs in London, Brussels and Turin. In China, institutional breakthroughs have been made in smart urban governance in the past few years, with the application of advanced information and network technology. ‘Internet+’ has transformed urban governance and management models in a profound way. Smarter ways to manage population and monitor urban road networks and the smart emergency response system are among typical examples of smart urban governance. The Smart Urban Governance approach adopted by **Weihai City (Shandong Province)** aimed at enhancing governance capacity and providing public services in a more efficient way to improve people’s livelihoods by tapping the potential of e-governance through institutional change and socio-technological innovations.

### **Conclusions**

The Conclusions of the report is intended to suggest potential areas and ways of collaboration between Europe and China in sustainable urban development by analysing similarities and differences in the good practices between both sides. The good practices are selective rather than exhaustive, which represent, to some extent, related projects that have been funded by JPI UE and represent the sustainable urban development landscape (including pilot cities , projects, etc.) in China.

The similarities in sustainable urban development between Europe and China are largely due to common urban challenges that both sides are facing. The differences are mainly caused by different levels of urbanization, stages of socio-economic development as well as different approaches to urban governance and sustainable urban development between the two sides in general. The following two main differences are derived from the cases investigated:

- ***Different Scales and Ways to Scale up.*** In general, the good practices in Europe are more likely on the project scale, which focuses more on testing frameworks, approaches and/or innovative technologies and on the rollout of the already tested and approved demonstration projects. While the good practices in China are more inclined to on the city scale, which puts more emphasis on implementing related projects in pilot cities and selecting and involving more eligible cities as pilots to start related projects.
- ***Different Ways to Engage the Public.*** Different ways have been witnessed on both sides in public engagement in European and Chinese cities. Collaborative approaches and co-creation methods are more strongly applied in the cases of Europe than China. This may be due to the different governance approaches, a more top-down approach in Chinese cities, compared to a mixed model of top-down and bottom-up approaches in European cities.

Besides those differences in scale and urban governance approaches, the cases in the report very well demonstrate that urban transitions require integrated approaches and the involvement of different stakeholders. In principle the following three main elements are key for driving sustainable urban development:

- Availability of new technological solutions or social innovations that help to tackle specific urban challenges
- New governance models and capacities to take advantage of such new technological and social opportunities and to create frameworks for urban transitions
- Mobilisation of citizens to create awareness of new approaches and solutions, drive behaviour change and support uptake of new solutions through early involvement in urban planning and development process

According to this, to achieve sustainable urban development, efforts are needed involving all stakeholders (e.g. cities, businesses, universities/research institutes and financial institutions) on all scales with strong support from research and innovation. Dealing with this complexity

and experimental settings at the local or city level can help addressing specific challenges, through local pilot projects or living labs, allowing all stakeholders to cooperate, co-create, engage in urban development action plans. Evidence produced during the process can then be created for good practice and conclusions can be drawn for wider implementation, including new policies, partnerships or business models. The cases given in the report highlight the potential of such multi-stakeholder approaches and create interesting references for further exchange between European and Chinese actors.

As Europe and China are different in the above-mentioned aspects, it could be worth exploring each other's market by better knowing local knowledge and needs. In general, the Europe side could provide Chinese cities with sustainable urban development framework and experiences in related areas (e.g. open data and urban living labs) by sharing its already tested and approved demonstration projects in collaboration with Chinese key stakeholders. China has a huge market with enabling environment for innovation, and meanwhile could provide information and network technologies and physical infrastructure construction in European cities where needed in collaboration with European key stakeholders.

Furthermore, partnerships may be needed to mobilize and integrate resources from the key stakeholders in Europe and China. Given the fields of action and work of JPI UE and CCUD in Europe and China mentioned earlier, it could be helpful for the two organisations to play a facilitator role on each side. Suggested ways of cooperation may include, but not limited to the following: conducting cooperative projects involving key stakeholders from both sides, with European and Chinese cities as demonstrator and/or observer cities; and organising events to gather expertise of European and Chinese experts and key stakeholders to better understand local knowledge as well as exchange ideas and experiences that could be transferable and adapt to other local contexts.