TRANS-URBAN-EU-CHINA

Transition towards urban sustainability through socially integrative cities in the EU and in China

Deliverable

D 2.2 Concept for practical tools and mechanisms for the development of sustainable cities, integrative planning and implementation

WP 2 Bridging the planning-implementation gap in eco- and smart cities

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EXECUTIVE SUMMARY

In the past decades cities in Europe and in in China went through considerable – albeit different - processes of transformation, encompassing specific social and economic dynamics and producing significant spatial and environmental imprints and effects. While most European cities experience moderate levels of urban growth and are focused on the processes of urban renewal and innovation, the urban development in China advances at a high speed, intensity and scale. A multitude of factors, processes and actors influence these processes on both continents and entail distinct implications, patterns and effects. Despite different contextual factors such as scale, local urban characteristics and politico-administrative settings, the processes of urban transformation in China and in Europe contain some overarching similarities in most formal instruments and share the underlying joint aim to exchange and further develop know-how and experience as well as best practice for shaping sustainable, integrative, socially mixed, cohesive, liveable, resilient and vibrant urban environments.

Given this context, the WP2 project team has been entrusted with the task to develop the conceptual framework for tools and mechanisms for the development of sustainable cities, integrative planning and implementation. The conceptual framework is mainly based on urban transformation theory (Wolfram, 2016) and empirical findings derived from case studies. This report contains a summary of the work of WP2 and outlines the approach as well as a tentative structure and preliminary categorization of the tools and mechanisms. These will be tested refined and validated in the next project phase. The conceptual toolbox outlined in this report, is embedded in the overall framework of the TRANS-URBAN-EU-CHINA project, while addressing the specific assignment of the WP2: bridging the planning-implementation gap in eco- and smart cities.

1 FOREWORD

1.1 INTRODUCTION AND AIM

The WP2 tasks, carried out within the past six months of the project were focused on the detailed investigation of case study cities in Europe as well as in China.
Based on the Analytical Framework (Wolfram, 2016), outlined in the previous Report D2.1, a template for the case study assessment has been prepared and is in the process of being completed for each European and Chinese city case. The level of completion varies from case study to case study as it depends on the information and interview partner availability. Each case study is screened on two levels: strategic level and implementation-project level. One key focus of the screening process are the tools and mechanisms for closing the planning and implementation gap. Another focus is the identification of shortcomings and needs concerning the practical tools and mechanisms that cities, particularly in China, require on their transition towards more sustainability, integrative development and social inclusiveness.
The aim of this report is to outline the preliminary concept for practical tools and mechanisms for the development of sustainable cities, integrative planning and implementation which aim at closing the gap between strategic development and implementation, while supporting the development of socially integrative cities. The preliminary categories of tools and mechanisms are supported, to some extent, by case study data where information has been accessible and available to date. Importantly, the toolbox concept as well as the categories of tools and mechanisms will be further discussed and elaborated in the context of the overall project and the living labs in China. The concepts outlined in this report forms the principal base for more detailed work on the tools and mechanisms through the ongoing work with the case studies.

1.2 STRUCTURE OF THE REPORT

This report consists of four main sections:

- Brief description of the approach, conceptual framing and the logic behind the initial concept for the tools and mechanisms
- Section on the overall multi-dimensional structure of the tools and mechanisms
- Description of each category of tools and mechanisms
- Outlook and next steps

2 APPROACH, CONCEPTUAL BASE AND CATEGORIES OF TOOLS AND MECHANISMS

The concept of practical tools and mechanisms for the development of sustainable cities, integrative planning and implementation is based on the two complementary conceptual frameworks and supported by empirical data from the case studies (Figure 1):

- The urban transition and transformative capacity theory (Loorbach, 2016; Wolfram, 2016; Wolfram & Frantzeskaki, 2016)
- Five topics and twelve characteristics of socially integrative cities (UN-HABITAT, 2013; United Nations, 2017), essential in the context of sustainable urban development and integrative planning and implementation outlined in detail in Report D 6.6.
- Preliminary empirical findings (knowledge base) extracted from six European city case studies (Budapest, London, Madrid, Santander, Stockholm, Vienna) and six Chinese city case studies (Beijing, Chongqing, Shanghai, Shenzhen, Tianjin, Wuhan)

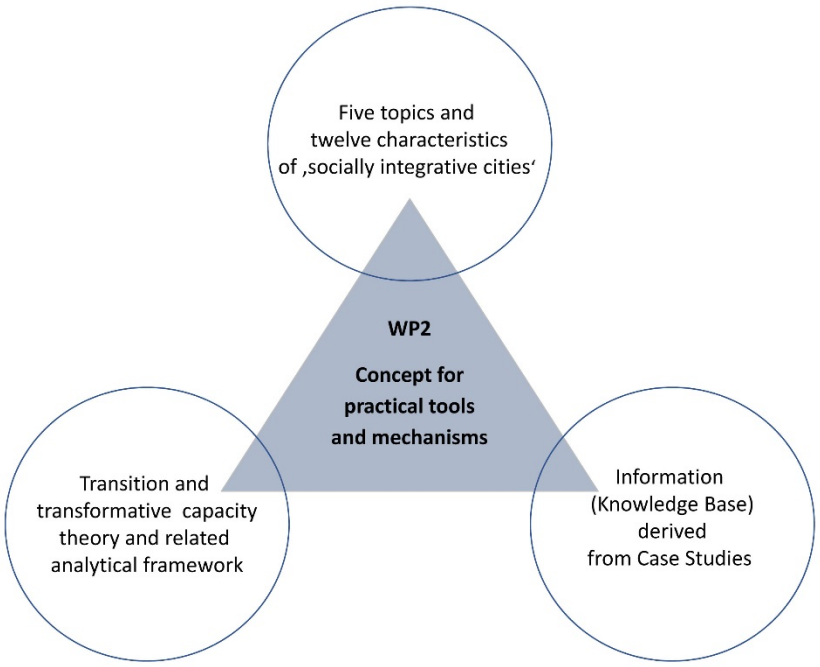


Figure 1: Theoretical and empirical base of the practical tools and mechanisms for the development of sustainable cities, integrative planning and implementation.

The work compiled in this report is following the overall WP2 approach and methodology (Figure 2) while connecting to the overarching aims and objectives of the project.

The outcomes, derived from early case study assessments exposed a variety of practical tools and mechanisms that different cities apply in pursuit of sustainable development, integrative planning and implementation. The research outcomes available to date grant insights into achievements and shortcomings concerning available tools in the context of sustainable urban development, integrative planning and implementation on the city level as well as implementation in specific local projects. The individual case studies display different and diverse development tendencies and attributes, specific

to the local planning and development context. Nevertheless, some patterns emerged from the overall pool of the case studies, leading to the initial conceptual framework of tools and mechanisms for sustainable development, integrative planning and implementation (Figure 3 & Figure 4). This conceptual framework consists of six overarching categories of tools and mechanisms (Figure 3) and three dimensions (Figure 4). Their aim is to foster sustainable, socially inclusive and integrative urban development and implementation and to support the closing of existing gaps between strategic planning and implementation. The categories of practical tools and mechanisms are linked to the five topics and twelve characteristics of the socially integrative city (Table 1), described in detail in the Report D 6.6. Linkages between the five topics, their elements and the six categories of tools are highlighted it the Section 4 of this report.

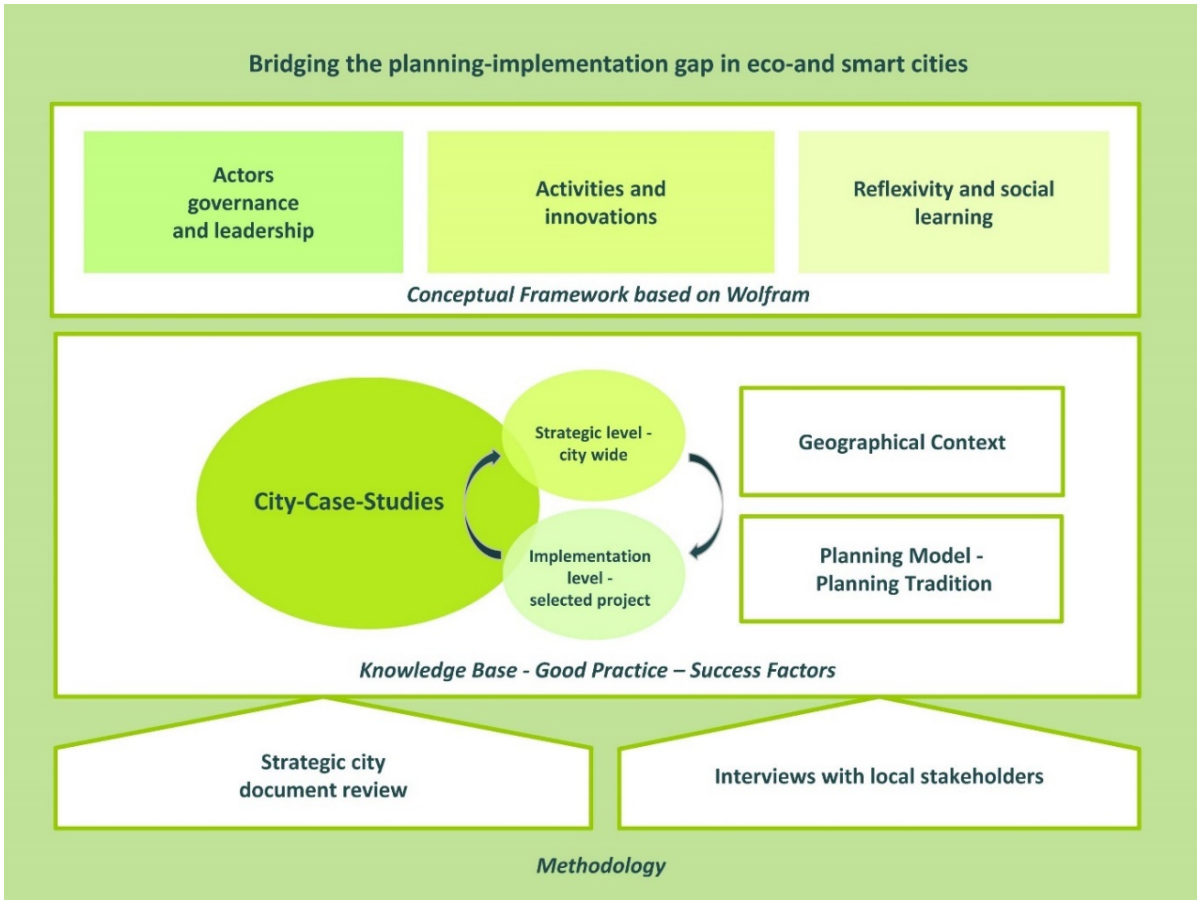


Figure 2: Overall approach and methodology of work conducted in WP2

Taking into account the high level of complexity and inherently dynamic nature of urban environments and considering the multitude of processes, stakeholders and disciplines involved in shaping and transforming cities, the tools and mechanisms have been developed by taking an integrative and pluralistic perspective. Thus, the six categories and tree dimensions of tools and mechanisms attempt to address a range of facets in urban planning and implementation through a holistic approach.

Table 1: Characteristics of the socially integrative city

Collaborative urban planning and design
1. Reducing urban sprawl and promoting well-balanced land conversion from "*rural*" to "*urban*" and appropriate access to urban land
2. Involving the different stakeholders in collaborative and participative planning and design processes on the different politico-administrative levels
Urban environment and living conditions
3. Improving the environment and living conditions in urban areas
4. Upgrading the physical environment in distressed areas
5. Promoting efficient and affordable urban transport
6. Assuring equal access to municipal services
Local economy and labour market
7. Strengthening the local economy and labour market
8. Strengthening (technical and social) innovation in cities and neighbourhoods opening up new possibilities for the local population
Socio-cultural development and social capital
9. Fostering proactive education and training policies for children and young people in disadvantaged neighbourhoods
10. Preserving cultural heritage and fostering the identity of neighbourhoods and their inhabitants
11. Fostering social capital and engagement of local stakeholders
Institutional development and urban finance
12. Supporting adequate institutional and financial conditions and mechanisms

3 TOOLS AND MECHANISMS

Figure 3 depicts the six categories of tools and mechanisms that are essential in the context of urban transitions and innovation: 1) Social-Integrative-Educational; 2) Spatial and Environmental; 3) Technological; 4) Governance-Administration-Process Management and Decision Making; 5) Legal and Economic; 6) Political.

Furthermore, all six categories of tools and mechanisms (except for the political tools and mechanisms) contain tree subtypes. They are: 1) Formal tools and mechanisms; 2) Informal tools and mechanisms, 3) Demonstration: innovative-experimental tools and mechanisms (Figure 4).

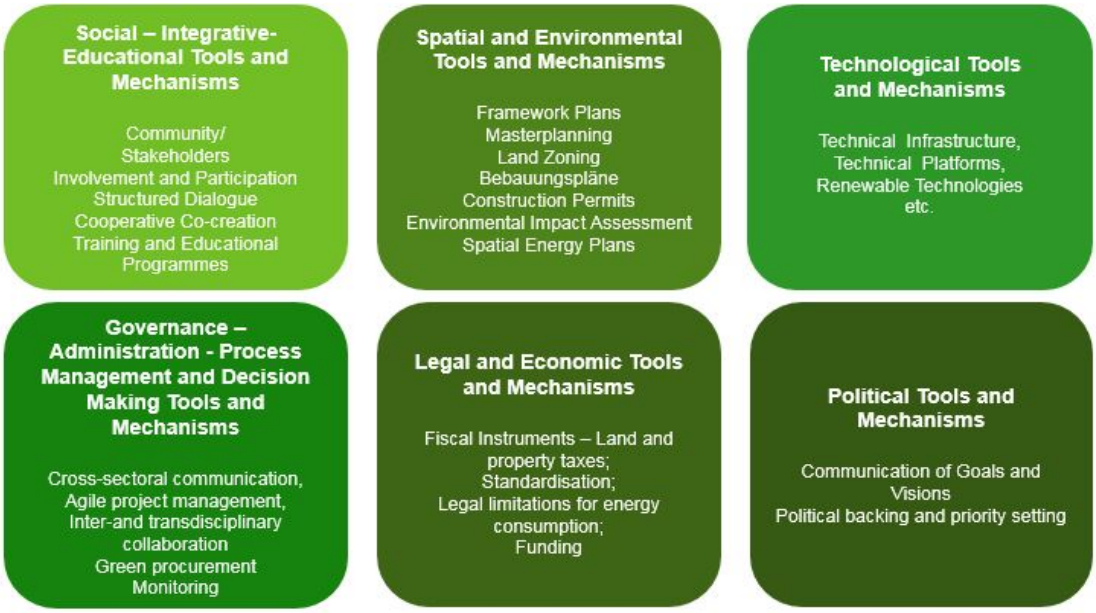


Figure 4: The six categories of tools and mechanisms

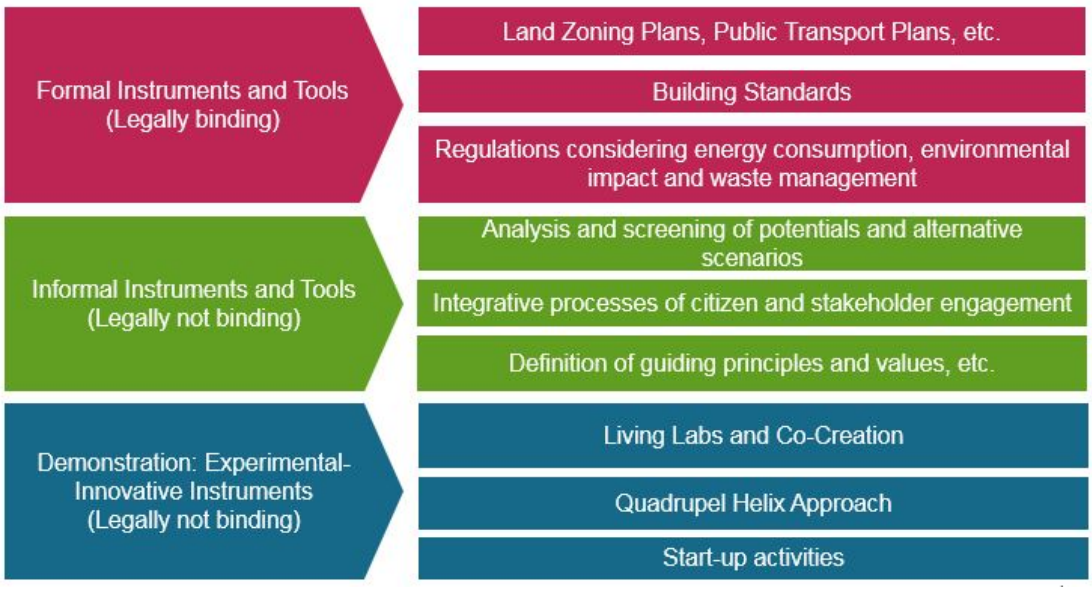


Figure 3: The three dimensions of tools and mechanisms

3.1 SOCIAL-INTEGRATIVE-EDUCATIONAL TOOLS AND MECHANISMS

The use of Social – Integrative – Educational tools and instruments has received increased attention as well as acceptance as an integral element at various stages of the urban planning process. The different tools identified are summarized under the following categories: 1) stakeholder and citizen involvement 2) structured dialogue 3) cooperative co-creation 4) training programs

Some of the tools are very formalized and mandatory in different planning phases while others are informal and non-legally binding. Similarly, different instruments are experimental and used in innovative planning workshops or living-lab approaches. While they can be used at all politico-administrative levels, they are most often applied in strategic planning and planning processes on the scale of the entire city as well as on the neighborhood level.

The concept of socially integrative cities presumes a common understanding of mid- and long-term development goals and that these principles are jointly developed in an inclusive negotiation process that integrates residents into decision making. Social-integrative and educational tools aim at achieving this through facilitated dialogue, co-creation and meaningful involvement in a collaborative urban planning and design process with all relevant stakeholders. They can help to directly address the needs and requirements of otherwise neglected stakeholder groups, fostering a sense of pride and ownership and thereby improving the sustainability of planning decision and implementation outcomes. Overall, Social – Integrative – Educational tools are mostly based on an inclusive and participatory approach. They aim at the engagement of local stakeholders and to develop social capital in the urban planning process for socially integrative cities.

Another aim of these tools is to develop the capacity for stakeholders to participate in the planning processes and to make it more integrative. Such measures may include trainings that strengthen interdisciplinary skills and allow for knowledge transfer and best practice sharing. Novel training and education processes are also used to foster cooperation between different actors (e.g. local governments, civil society, private sector) by focusing on peer-to-peer learning as well as the intermediation and dissemination of contextualized knowledge and lessons learned. Social-Integrative-Educational tools are often combined with other tools (e.g. ICT technologies) to enable online participation and communication that is easily accessible to a wider range of participants.

3.1.1 FORMAL TOOLS AND MECHANISMS

Examples of formal and legally binding tools and mechanisms are stakeholder engagement forums in strategic planning and large-scale development projects.

3.1.2 INFORMAL TOOLS AND MECHANISMS

Informal tools and mechanisms can be developed but are not mandatory. Such tools are often used in best practice urban development projects where urban development organizations and authorities are taking-on leadership roles.

3.1.3 EXPERIMENTAL TOOLS AND MECHANISMS

Experimental-innovative tools and mechanisms entail a variety of relatively new tools and mechanisms that promote experimental types of developments. Living labs, community visioning and new forms of stakeholder dialogue and engagement are tested to support the development of socially integrative cities.

3.2 SPATIAL AND ENVIRONMENTAL TOOLS AND MECHANISMS

The spatial and environmental tools and instruments serve the process of spatial allocation, anchoring and implementation of the sustainable development goals in the local development context. Spatial and environmental tools and mechanisms are intended to 1) foster collaborative urban planning and design; 2) to improve environmental and living conditions in urban areas as well, as 3) to upgrade the physical environment in distressed areas. These three attributes form important elements of 'socially integrative cities' (Table 1). Examples of such spatial tools and instruments include but are not limited to:

- Integrative Framework Plans
- Sustainable Spatial Masterplans
- Land Zoning Plans
- Construction Plans (Bebauungspläne)
- Construction Permits
- Spatial Energy Plans (Energieraumpläne)

More specific examples of Environmental Tools and Mechanisms contain:

- Environmental Impact Assessments
- Low Carbon Action Plans

The Spatial and Environmental Tools and Mechanisms may be applied in a variety of ways. Similarly, their application depends on the national, provincial and local planning regulations and planning frameworks in Europe and in China.

Some of the tools and mechanisms named above are legally binding and others are not. This may also vary in relation to the national, provincial or local context and the setting of a specific urban development project (e.g. urban, suburban, etc.).

3.2.1 FORMAL TOOLS AND MACHNISMS

Examples of formal, legally binding tools and mechanisms are land zoning plans and construction permits, as well as master planning, regulatory planning and detailed construction planning in case of China when the new planning reform is in place. In some cases, particular in big cities in China, environmental impact assessments can be legally binding for urban developments of a certain type (redline of eco-boundary) and scale.

3.2.2 INFORMAL TOOLS AND MECHANISMS

Informal tools and mechanisms can be used but are not mandatory. Such plans are often developed in the context of scientifically funded research projects. However, more and more European cities adopt such tools and mechanism for best practice urban planning.

3.2.3 EXPERIMENTAL TOOLS AND MECHANISMS

Experimental-Innovative tools and mechanisms entail a variety of relatively new tools and mechanisms that promote experimental types of developments and framework conditions, such as living labs and other co-creative settings.

Spatial and environmental tools and mechanisms: Stockholm Royal Seaport

Stockholm Royal Seaport is one of the largest urban development areas (brownfield development) in Northern Europe with 12 000 new homes and 35 000 workplaces. The land is owned by the City of Stockholm (partly the land is sold, partly it is leased). Civil contracts are being used (quite tough requirements for the developers; those are elaborated by thematic working groups across several city departments and (private) companies). Through dialogue and monitoring, experience gained from the project is transferred and documented as the implementation proceeds. The frequent contact with property developers with monitoring results are direct impulses on how the sustainability requirements work in practice. This regular feedback provides significant input on how the specifications could be developed when moving forward. The Stockholm Development Administration reports the results achieved each year, by both the property developers involved and within the framework of the City's work with planning and implementation. The sustainability report and the monitoring report are aimed at spreading these achievements and experiences both within the city and to all external stakeholders. The monitoring data base is linked to the civil contracts mentioned above.

3.3 TECHNOLOGICAL TOOLS AND MECHANISMS

Different technical tools and instruments were identified for providing support and guidance at different levels of planning for socially integrative cities: strategic planning, planning on the neighborhood level and implementation. The different tools contain but are not limited to: 1) Technical Infrastructure 2) ICT Instruments 3) Renewable Technologies, etc.

These tools are applicable at different planning scales ranging from the whole city, to a sub-region of a city, a district or a street block. For example, ICT Instruments such as Geographic Information Systems (GIS) find their application on a whole city scale for strategic planning purposes. At this scale they can assist in forecasting and decision-making tasks and support the formulation of strategic planning objectives. ICT instruments can also assist in translating strategic planning objectives in on-ground design considerations in implementation project. ICT instruments thereby connect the strategic planning with implementation and facilitate the integration between these phases. Importantly, technical tools and instruments are applicable to a range of different areas in urban planning such as land use, transport, housing, land development and environment and can facilitate more integrative planning.

Overall, technical tools and instruments are routinely used by planning agencies and organizations in developed and developing countries. The use of some technical tools and instruments is mandatory in some cities and they are often a precursor for the development of other legally binding instruments (e.g. use of GIS based modelling tools for land zoning plans). Other technical tools are non-mandatory however, and sometimes experimental in nature (e.g. novel technical infrastructure such as the smart city cloud platform in the case of Wuhan). With increased functionality, user friendliness and a reduction in costs, technical tools have established themselves as an important instrument for best practice urban planning. The main constrains for their adoption are data availability, human resource capacities and governance arrangements.

3.3.1 FORMAL TOOLS AND MACHNISMS

Examples of formal, legally binding tools and mechanisms are the use of different spatial assessment or GIS based modelling tools at a range of different scales and application contexts.

3.3.2 INFORMAL TOOLS AND MECHANISMS

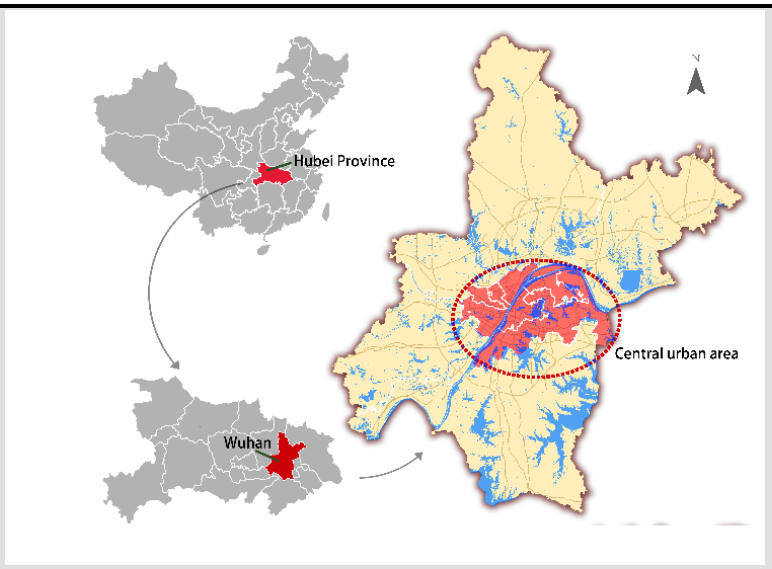
Informal tools and mechanisms can be developed but are not mandatory. They usually come into effect at best practice urban planning and development projects and involve sophisticated modelling and analysis instruments.

3.3.3 EXPERIMENTAL TOOLS AND MECHANISMS

Experimental-Innovative tools and mechanisms entail a variety of relatively new tools and mechanisms that promote experimental and novel types of urban planning and development. New developments in digital technologies have led to the emergence of innovative tools and mechanisms in recent years.

Technological tools and mechanisms: Wuhan Smart City Cloud Platform

Smart City's Cloud Platform for Spatio-temporal Information (namely, CPSI) is administered by the National Administration of Surveying, Mapping and Geo-information (NASMG). The project is a collaboration between NASMG as well as the Hubei Provincial Surveying and Mapping Geographic Information Bureau, and the Wuhan Municipal People's Government as well as the Wuhan Municipal Bureau of Land Resources and Planning. Its main purpose is to establish a unifying spatial information infrastructure. It serves as one of the eight data centers in Wuhan, and more than 200 government application at the city and district level use the infrastructure for their planning and implementation tasks.



3.4 GOVERNANCE-ADMINISTRATION-PROCESS MANAGEMENT AND DECISSION MAKING TOOLS AND MECHANISMS

The tools and mechanisms in this category aim to support 1) adequate institutional conditions and processes and 2) involvement of different stakeholders in collaborative and participative planning and design processes on the different politico-administrative levels as well as 3) assure the access to municipal services. The tools and mechanisms of this category support the three key elements of socially integrative cities as outlined in the Table 1.

Selected examples of such tools and mechanisms from European case studies are:

- Agile project management
- Cross-sectoral communication and collaboration
- Inter-and transdisciplinary collaboration
- Trans-departmental collaboration
- Green procurement
- Monitoring systems

In some planning and development contexts the tools and mechanisms named above are mandatory while others are voluntary. Below are some examples of the different types.

3.4.1 FORMAL TOOLS AND MECHANISMS

Green procurement can be legally binding in some European cities, depending on the context as well as the strategic and project aims.

3.4.2 INFORMAL TOOLS AND MECHANISMS

Monitoring strategies, processes and systems for monitoring of smart city development progress are being established in numerous European cities (e.g. Vienna). However, these processes are very complex, rooted in the local planning culture and not legally binding to date.

3.4.3 EXPERIMENTAL TOOLS AND MECHANISMS

A variety of cities in Europe experiment with negotiation and collaboration processes between the private and municipal stakeholders in order to improve it and to make it more effective. New tools and mechanisms, such as agile project management are being applied and tested. Furthermore, different scientific projects provide good testing ground for innovative models of urban governance.

Governance-administration-process management and decision-making tools and mechanisms: Stockholm Environment Programme

The Stockholm Environment Programme (2016-2020) encompasses 6 comprehensive environmental targets. 6 groups (5-10 people from different departments, business groups, etc. in each group.) were formed, one group was responsible for each environmental target (or each area). The city manager takes the main decision(s) when the programme is prepared. The city council approves the programme after a reviewing process. Each target has a responsible board/administration following up on the target, which was a big step forward in this programme and its implementation. The "follow-up" of the sub-targets (and the indicators) is reported every 4 months, which is important for the politicians for steering purposes. There is also an annual report about the sub-targets and their progress, which is done by the departments (for the city hall).

3.5 LEGAL AND ECONOMIC TOOLS AND MECHANISMS

Legal and economic tools and mechanisms aim to strengthen the local economy and labor market, to find new and innovative means to fund experimental and innovative developments, to foster (technical and social) innovation in cities and neighborhoods and to open up new possibilities for the local population. Such tools and mechanisms make up an essential part of sustainable and socially integrative cities. Some examples are:

- A variety of fiscal Instruments such as land and property taxes
- Standardization
- Legally binding limitations for energy consumption
- Novel funding mechanisms
- New business models

- Research funding

3.5.1 FORMAL TOOLS AND MECHANISMS

Legally binding tools and mechanisms under this category are for example building standards and land and property taxes that accompany a specific urban development towards a more sustainable and integrative outcome by setting stricter requirements and rewarding the sustainable and socially inclusive types of activities through fiscal incentives. In case of China, the municipal Five-Year-Planning program can be a good example for this category, in which a set of quantitative objectives towards a sustainable urban economic development and a socially inclusive spatial reflection in each five year period are legally defined and double checked after each five years implementation.

3.5.2 INFORMAL TOOLS AND MECHANISMS

Informal economic tools and mechanisms set up novel funding mechanisms and incentives that can be taken up. For example, creating attractive framework conditions and incentives for the use of renewable energy within an urban development may be one mechanism. Implementation of specific local measures based on crowd funding may be another example under this category.

3.5.3 EXPERIMENTAL TOOLS AND MECHANISMS

Demonstration of successful and innovative solutions, which highlight their positive effects in social, environmental, technological and economic terms in the fields of mobility or urban environment is one example of experimental mechanisms that can be applied.

3.6 POLITICAL TOOLS AND MECHANISMS

The political category of tools and mechanisms entails a variety of awareness raising elements that political representatives can apply in setting, guiding and communicating the direction and importance of sustainable and socially inclusive development.

The political tools and mechanisms are strongly interlinked with the tools and mechanisms in the legal/economic and governance categories and should therefore be considered in relation to each other. Furthermore, political tools and mechanisms may entail the creation of a positive, resourceful and supportive environment within which collaboration and negotiation between different stakeholders can thrive.

4 OUTLOOK

In the coming project phase, the concept for practical tools and mechanisms for the development of sustainable cities, integrative planning and implementation will be further developed, validated and refined. Best practices and innovative solutions drawn from the case studies will feed into the continuous development of the different tools and mechanisms. This will lead to a more detailed conceptualization and practical understanding of the different categories which will be discussed and cross-references with project stakeholders and relevant project team members. Similarly, testing of these tools in living labs in China is another important part of the development and validation process. A consistent alignment with the overarching project aims (five topics and 12 characteristics of socially integrative cities) will be maintained throughout the working process while simultaneously looking for synergies with other project outputs.

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