

Preface

Urbanization, an irreversible trend in the economic and social development of humankind, can be regarded as an important index of prosperity and social progress in the country and region. Processes of urbanization yield many positive effects, but especially in phases of rapid urbanization, certain qualities are in danger of being neglected or overrun by the sheer forces of the processes. Locality, which refers to the specific natural and cultural characteristics of a place, is one such endangered quality. An increasing number of contemporary urbanization projects look the same; they do not address the local character of the site, which leads to urban areas with a low identity. Residents have a difficult time identifying with their environment in these new districts, a phenomenon that decreases the quality of living. In this book, researchers from Germany and China address the topics of urbanization and locality and then determine how identity and sustainability can be strengthened by site-specific design and planning. Pairing these two countries is relevant because both represent different stages in the urbanization process, leading to different problem definitions and solutions. Germany is a developed country where the urbanization rate has stabilized at a high level, whereas China is a developing country currently in a stage of rapid urbanization. Germany, as one of the world's most highly urbanized countries, already saw two periods of rapid urbanization (at the end of the nineteenth century and after World War II) and is currently implementing subtle strategies to achieve identity and sustainability in urban planning. A dialog with China might provide experiences in urban planning and design valuable for rebuilding a harmonious human–earth relationship in China. China is currently experiencing new-type, high-speed urbanization that has an impact not only on China but even beyond, in terms of the use of resources or as an example for countries that will enter the stage of rapid urbanization. Further, China's transition period of urbanization can provide different perspectives and ideas for German researchers, especially by reflecting on the large-scale planning and design strategies and their relevance for the rather small-scale urbanization processes in Germany.

In view of the above and in response to the contemporary necessity for people-oriented and sustainable development, this anthology addresses the following questions: How can the multiple contradictions in the human–earth relationship that arise in the process of urbanization be solved? How can one’s own heritage be retained? How can cities and towns be developed by addressing their natural and cultural characteristics in a creative way? How can balance be struck between the specificity of a local situation and the uniformity of global urbanization trends? The authors of the articles are experts from China and Germany in such fields as planning, landscape architecture, geography, architecture, history, and public management. For the topic of urbanization and locality, their work will communicate problems and measures as well as develop new theories and practice strategies, thus presenting valuable knowledge for researchers, practitioners, and managers around the world engaged in urbanization.

China’s urbanization process is in the context of scarce land resources and increasing conflicts between the people and the land. A high degree of spatial and temporal overlap as well as compression has caused the “China model” of urbanization, which reflects complexity, difficulty, and specificity. China has previously experienced initial expansive urbanization, leaving increasing contradictions in the human–earth relationship or the relation between urban and rural areas. First, land supply and demand are in ever-growing conflicts; second, urban sprawl brings directly or exacerbates “city diseases,” such as environmental pollution, traffic congestion, population increase, energy dissipation, and other aspects; third, the decline of the countryside has led to the loss of land, rural hollowing, and other “rural diseases.” In terms of easing the contradiction of land supply and demand, China needs to implement further optimized patterns of land development on a macroscopic scale and improve the quality of the national land comprehensive management strategy pattern. On the mesoscale, regional industrial structures and the intensive use of land resources should be regulated by defining urban growth boundaries and ecological red lines. On the microscopic scale, through developing underground spaces, more urban space is needed to ease the human–land relationship contradiction.

In response to “city diseases,” smart land use is always a key point within new-type urbanization strategies. The conception of suitable strategies for land use that could alleviate the contradiction between the supply and the demand of land is a priority of new-type urbanization. In Chap. 3, Feng et al. apply a theoretical model analysis and measure land demand by reviewing the development stage and characteristics of China’s urbanization; their work summarizes the problems and challenges in the course of urbanization and then discusses the connotation of new-type urbanization. On this basis, they propose countermeasures and practical references for land use. Han and Guo report that the development and construction of green roofs can ease tensions to urban construction land and can respond to ecological problems due to rapid urbanization. In Chap. 17, which raises the design requirements of green roofs implementation for program and architecture materials, Han et al. suggest layout principles, architectural design principles, and integrated

design approaches. They propose zoning guidelines for green roofs implementation and offer recommendations and policies related to program implementation.

For rural districts, evoking respect for nature is an effective means to preserve and develop beautiful rural landscapes. At present, by driving such policies as “agriculture, rural areas, and farmers” and new urbanization, the advance of urbanization in mountainous villages is restricted not only by the development bottleneck of the industrial space and the settlement space in such locales but also by other problems due to the poor coordination between the two aforementioned zones. Further, ecological safety remains an inconvenient hidden danger. In Chap. 5, Long et al. seek to improve the status through space integration of industry and village. They further argue that control mechanisms and design systems of multiple regulatory integration and dynamic order should be established for urbanization in rural mountains.

In the process of urbanization, the architectural cultural heritage and traditional features of Chinese urban and rural areas, gradually formed through thousands of years, face a great threat from the strong influence of urban and foreign culture. The protection of natural and human resources has become a new challenge in new-type urbanization. In the dramatic process of urban transformation, stakeholders wonder how to preserve the context in urban and rural development and how to protect the characteristics and cultural deposits of urban and rural areas. These essential questions are discussed in this book. Site-specific planning and design are rooted in natural and human-made environments, addressed in the concepts of “geo-architecture and geo-planning” or landscape architecture. Akin to the two sides of a coin, this approach has two reciprocal aspects: The first aspect is related to the way in which natural and human environments impact designs and plans, and the second aspect involves how designing and planning respond to and alter natural and human environments. Designing and planning aim at altering space in material and immaterial ways. Urbanization is continuously inserting tangible elements and intangible values into physical space (even without design). To explain effectively the special dependencies between people and places, the concept of “locality” is used. This term refers to the features or characteristics found in specific places. In rapid urbanization, an area’s locality is confronted with the challenges of variation and dissolution as well as the opportunity for transformation and development. Yuan et al. address these aspects in Chap. 18, which focuses on developing a novel methodology for site-specific urban design that integrates environmental performance simulation with ecological design strategies into a generative design process by using computational tools, thereby realizing sustainable urbanization with distinctive locality.

In planning at the urban and rural scales, priority should be placed on those elements that have a strategic meaning to culture, ecology, and society. As a design condition of urban and rural planning, these elements protect the local characteristics and historic context. Zhao et al. in Chap. 6 provide a summary and reflection of rural planning in Chengdu. In their work, a series of regulations or normative documents, formulated in the process of rural planning and management practices, guarantee the legality of rural planning and take full advantage of local resources

and rural characters. They enhance the ecological and social resilience as well as reduce the clashes between people and place in future development projects. Shao in Chap. 20 points out that the multi-dimensional experience patterns of the rural landscape need to be understood to aid the decision making related to sustainable development in rural areas. In urban design, through collaborative planning and public participation, the urban local characteristics and historic context could be protected effectively, as Wang et al. demonstrate in Chap. 2. Through research on urban memory, an approach based on the environmental cognition and urban organic growth theory is put forward; this approach accepts the conditions of material space planning but is nonetheless capable of protecting traditional features and urban characteristics. The comparative study on locality helps form a correct understanding on the components and characteristic regulations of locality, which help avoid urban similarity and lack of locality and drive a comprehensive, healthy, and rapid urban development pattern.

On the level of the urban district, regarding urban memory as a core idea in historic district planning, a novel methodology for the protection and planning of historic cultural districts could be gained by excavating urban context, depositing and extracting memory fragments, joining and integrating urban memory, and then planning and establishing memory space. The preservation of historical streetscapes plays a crucial role in maintaining locality. Using a subjective-oriented approach, Zhao's Chap. 12 investigates the effects of urban regeneration in Beijing by looking at the case of the Qianmen-Dashilan area. The research identifies gaps between the preservation plan goals and the actual urban renewal outcomes. The differences between visitor and resident satisfaction suggest that the conservation of historical streetscapes in Beijing should strike a balance between satisfying the local residents' needs for improvement in their living situation and preserving the historical fabric in the old historical areas. Along with the rapid urbanization and the intervention of tourism, street preservation and tourism development form a pair of contradiction. Accordingly, recognition awareness or locality faces a challenge. Li and Xu introduce a theoretical discussion in Chap. 10 by studying the site's heritage value components and development status. They suggest, from the perspective of proactive utilization of cultural heritage preservation, an integrated cultural heritage street preservation and development model that encompasses several efforts ranging from the preservation of architectural nodes to spatial fabric preservation and material carriers to intangible heritage, and from safeguarding against the displacement of local residents to building of cultural recognition awareness.

Finally, on the scale of architectural objects, research on traditional dwellings after urban regeneration shows that the influence of urban regeneration on community residents' architectural heritage identity is contradictory. On the one hand, the recovery of traditional buildings reinforces the residents' identification with their local culture; on the other hand, the modern elements required by the young urban generation create the danger of identity loss. In exploring urbanization and locality, the use of interactive digital design could improve building performance and the utilization of local resources. A combination of traditional and modern culture could be used to develop resource-saving architectural structures as well as

provide actual innovative architectural characteristics. Various types of vernacular dwellings can be found around China, and their spatial shaping corresponds to the natural environment as well as the cultural and architectural traditions of specific regions. Fan and Wang in Chap. 9 point out that the perpetuation of religious belief in settlement constitution is significant in protecting local culture within processes of new-type urbanization. Regarding the affront of the challenges of destruction to the locality of historical villages, Xie et al. analyze the vitality loss problem in Nan'anyang Village under urbanization in Chap. 11. They put forward an approach to conserve and improve the village; the approach is oriented toward sustainable tourism, based on landscape renovation, and guaranteed by community activation. Chu and Wei explore sustainable buildings in Chap. 15 and point out that effective design methods need to be realized in the context of rapid urbanization to achieve high sustainability goals. In the development of public buildings, such as medical architecture, the appropriate balance should be established between function and connotation of regionalism through coordination and integration, as Li summarizes in Chap. 8.

In Germany, the pressure for urbanization is on far a lower level than in China. Nonetheless, in recent years, cities have grown much more attractive, with most urban areas in Germany, e.g., Berlin, Cologne/Bonn, or Munich, expected to experience a population growth between 3 and 10 % until 2035 (BBSR Raumordnungsprognose, 2035). These new urban dwellers have a high demand for quality, and sustainability and identity play a big role in meeting these demands. In a recent survey by the German Institute of Urban Affairs (Difu) and Technical University of Berlin, local identity is found to be among the highest priorities for ensuring the quality of urban living. This demand is accompanied by a high consciousness of the necessity for sustainable urban design in the face of climate change. The contributions from German authors in the present anthology demonstrate how these two aspects of identity and sustainability can be achieved by strategies on different scales (region, settlement, house) or different aspects (building material, urban greenery, residents).

In terms of different scales, Schöbel offers strategies on a regional level to achieve locality and sustainability in Chap. 13. He transfers ideas from the urbanistic model of “critical reconstruction,” which was developed in the 1980s for the inner city context of Berlin, to the regional scale of urban landscapes. With the example of the Munich region, he demonstrates that an analysis of a regional landscape from the perspective of critical reconstruction helps uncover hidden elements and structures that form the bases for a specific design of regional urbanization projects. In Chap. 19, Rode argues for a focus on multifunctionality when dealing with urbanization on a larger, regional scale. He analyzes suburban landscapes, in which the city spreads outward and different demands for land use collide: housing, food production, recreation, or nature conservation. The Kronsberg area at the urban fringe of Hannover serves as an example of how his proposed concept of an integrated multifunctional land use could work. The concept aims for a synergy between recreation, agriculture, and nature conservation through a unifying planning concept. Consequently, sustainable development is

supported by ensuring social (e.g., recreation), economical (e.g., higher environmental quality to attract businesses or effective agriculture), and ecological functions (protection of biotic and abiotic resources). Further, locality can be strengthened especially by nature conservation measures, e.g., the protection of specific landscape elements or the development of new biotopes with local species.

On the urban settlement scale, three authors offer perspectives for locality and sustainability by proposing transferable design strategies. Carlow and Hong discuss methodological design principles formulated to accommodate urban growth in Chap. 21. These principles are 5-Minute City, Blue and Green Networks, and Preservation of Existing Structures, all of which can be adapted to meet the demands of sustainable development within the specific context of a project. By analyzing three projects from different continents, the authors show how the principles can be applied to establish a sound foundation for sustainable growth and adapted to local contexts. In Chap. 1, Prominski stresses that locality is not only an issue of conservation but also an issue of development. Even if a site for an urban settlement has very little to offer in terms of historic elements or specific character, locality can be created by design and planning. He discusses five case studies of newly developed urban settlements in Germany and China, and then concludes with three key strategies to establish new locality in future urban settlements.

The scale of a single house is addressed by Rudolph-Cleff in Chap. 4. The solar-active skin house is one of five projects she discusses, and this house and the four projects on the settlement scale she is mentioning express the necessity to work creatively with the local conditions to achieve resilience and sustainability. For localized planning strategies, the recognition of the microclimatic conditions, various uses, and different relations of a building site to the surrounding open spaces is especially important. These aspects are so diverse that any standard answer is impossible if their potentials are to be taken seriously. Such a scenario provides a great opportunity to work against the uniform scene of global standards and then find instead local answers that emphasize the special quality of a location without having to rely on historicizing images.

Three contributions in the present anthology focus on specific aspects to strengthen identity and locality in urbanization processes. Krieg, Schwinn, and Menges illustrate how far the decisions for a building material can reach. In Chap. 7, they describe the economic and ecological advantages of using the local material of beech wood. Beech is the most natural species in Central Europe's temperate seasonal climate and would normally make up two-thirds of the forests if not for the anthropogenic interventions in the past. In using new research on the qualities of beech wood as well as on design computation, the authors demonstrate how this traditional material can be used for modern construction demands. They conclude that the combination of a locally available resource, potential of strengthening the regional value-added chains, favorable CO₂ balance, and material's social acceptance is a promising foundation for the promotion toward using this local material in future urbanization processes. Welp et al. concentrate on the aspect of urban green spaces in Chap. 14. The establishment and maintenance of urban green spaces in both cases has depended on a specific institutional arrangement. The results have

strengthened the sense of locality of the urban dwellers and their identification with particular urban spaces. The final aspect to address is probably the most challenging: the residents themselves. In newly planned urbanization projects, the residents are hardly included in design generation that leads to a higher locality, mostly because the residents are absent. Nonetheless, the locality of existing urban settlements can serve as learning references. Stollmann in Chap. 16 presents a way to work with the actual inhabitants of the Gropiusstadt, a mono-functional settlement with 36,000 people from the 1960s that followed modernist, universal design ideals. In founding the Academy of a New Gropiusstadt, he has raised the levels of satisfaction and identification of the residents toward their settlement. The academy has developed urban interventions as a co-production of designers and residents. Not every intervention has been successful, but the best cases have generated a new common ground rooted in the specific locality of the place.

In summary, the contributions to this anthology address the issues of urbanization and locality from diverse angles. Despite the diversity of the issues, methods, and strategies, which is natural for such a complex topic, one interesting, unifying connection becomes apparent, which runs through most of the contributions: the close relationship of locality and sustainability. Both are important goals in urbanization processes, but at first sight, the two issues seem to be separate and need different strategies to be achieved. However, in according due respect to local conditions, e.g., the microclimate (Yuan et al.; Rudolph-Cleff), historical elements (Wang et al.; Li and Xu; Fan and Wang; Ma and Zhao), landscape structure (Prominski; Carlow; Schöbel), food production (Rode; Shao), material resources (Han and Guo; Krieg et al.), and inhabitants (Stollmann; Welp et al.), the authors demonstrate that the results of site-specific design and planning have a higher sustainability compared with universal approaches. The research by Chinese and German scholars presented here provides instructive theories and practical examples to reach those important goals of identity and sustainability. We hope that this work motivates researchers worldwide to approach locality and urbanization with creativity.

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