

Thesen zur Dissertation

NATURAL URBAN RESILIENCE

Understanding general urban resilience
through Addis Ababa's *natural city*

Dissertation

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Problem statement and research goals

- (1) The Ethiopian capital Addis Ababa is about 130 years old and today has about 5 million inhabitants. Despite a complex political and urban planning history, the inner-city structures, such as the road network and the social mixing, are still essentially the same as in the founding years around 1900. This continuity suggests that the inner city of Addis Ababa has a strong capacity to maintain its essential features under changing conditions.
- (2) The historical urban fabric of Addis Ababa can be considered a *natural city*. The concept of the natural city refers to a type of city with mixed functions and multi-layered relationships. Thus, the concept has served as a counter-model to modernist cities since its development in the 1960s¹.
- (3) There is great potential in understanding the natural city of Addis Ababa and the way it maintains its identity despite multiple layers of stress and recurring shocks. This is what is called *general urban resilience*. Understanding this phenomenon could provide a basis for making sustainable changes to the city and addressing challenges such as rapid urban growth, climate change, and digitization. Moreover, the natural city represents an African urban typology that has been little influenced by foreign planning and is perfectly adapted to local conditions. Understanding what contributes to this unique typology can create a basis from where a modern cityscape can be developed for Addis Ababa that integrates both its own historical urban culture and foreign impulses. It might also help urbanists to better understand those urban processes that can currently not be satisfyingly understood by Western urban theory.
- (4) Despite these promising potentials, the natural city is currently undergoing large-scale urban redevelopment, as the government is pursuing a hypermodern and "representative" image for the capital. The social and economic impact on existing inner-city communities is devastating, leading to growing social inequality and political unrest. Tens of thousands of poor inner-city residents are displaced by the government. The existing lack of housing in the inner city forces them to move to the outskirts, where they lack jobs, housing and social networks.
- (5) The demolition of the natural city is therefore a missed opportunity to develop sustainable and equitable solutions for the future of Addis Ababa from the wealth of today's urban structures. Instead, the current urban redevelopment increases the probability of future maladaptation to disturbances, as the behavior of a completely new system under stress is unpredictable. Ultimately, resilience requires a certain base of existing knowledge and identity. Furthermore, the social segregation that results from inner-city redevelopment leads in the long run to an uneven distribution of individual resilience in the city, which will decrease the resilience of the entire urban system on the long run.
- (6) For these reasons, a better understanding of the natural city of Addis Ababa is generally important. In particular, the complex interactions between natural city and general urban resilience are highly interesting for urban planning and policymaking but have not yet been investigated, which justifies the initial interest of this dissertation.

Theoretical grounding

- (7) In research on African cities, the hegemony of Western knowledge production is unbroken. This leads to the problem that "generally valid" urban theories - i.e. those developed by Westerners on

¹ Cf. Alexander, Christopher. 1965. "A city is not a tree." *Architectural Forum*, April/ May: 58-62.

the basis of Western urban phenomena - are still largely unable to explain or correctly address phenomena in African cities. The present dissertation takes the position that urban theory from Africa is necessary to address the specific problems of African cities. In order to take into account the postcolonial research context (western researcher working on an African case study), this dissertation uses instruments of self-reflection during the research process and incorporates several perspectives into knowledge production. In doing so, the perspectives “on the other side” are given priority in order to balance the privilege of the Western researcher on scientific authority.

- (8) This this furthermore follows a post-structuralist approach and understands cities as urban assemblages in which every material, immaterial, living, or non-living actor contributes to the complexity of urban processes. Cities are thus complex adaptive systems that are self-organizing and capable of learning from the past, adapting to ongoing changes, and planning for the future.
- (9) Beyond these two broader theoretical backgrounds, this dissertation reflects current urban resilience research. Resilience is a concept developed in psychology. In general, it is the ability to deal with stress and shocks while maintaining basic characteristics. Today the concept is applied in various research and planning fields, such as organizational management, health, or ecology. At present, resilience is widely recognized as one key to sustainable urban development.
- (10) This dissertation focuses on *general urban resilience*, which aims to understand how urban systems can adapt to and learn from any type of disruption without losing their basic functionality and urban identity. This ability can be both inherent and can be developed strategically through urban planning and policy.
- (11) A key concept critically reflected in this research is the adaptive cycle, which was originally developed for ecosystems². It refers to the cyclical reaction of a complex system to disturbances. However, there are doubts in the research community as to whether the cycle correctly describes urban adaptation processes, since urban systems, unlike ecosystems, are able to remember past adaptation cycles and plan for the future.
- (12) *Pathways to resilience* is another key concept used in this thesis. These are change mechanisms defined by different researchers in varying numbers and with different characteristics. Based on an earlier study in Addis Ababa³, this dissertation understands the pathways to resilience as small-scale change processes that each contribute to general urban resilience in a unique way.
- (13) A thorough review of existing urban resilience research shows that there is no urban resilience theory based on an Ethiopian or any other city in sub-Saharan Africa. Any urban resilience research that relates to Addis Ababa is based on Western theories and automatically leads to the conviction that the city needs improvement. It also leads to resilience strategies (just like urban development strategies) that do not reflect the needs and resources on the ground, which has repeatedly proven to be the reason for failed urban planning attempts in Addis Ababa and other African cities.
- (14) The aim of this thesis is therefore to critically reflect existing urban resilience theory from the West and to make this new theory accessible for urban resilience practitioners. To do so, this research

² Holling, Crawford S. 1986. “Resilience of ecosystems: local surprise and global change.” In *Sustainable development of the biosphere*, edited by W. C. Clark and R. E. Munn, 292–317. Cambridge, UK: Cambridge University Press.

³ Baron, Nicole and Zegeye Cherenet. 2018. “Perceptions and pathways of resilience in Addis Ababa.” *International Journal of Building Pathology and Adaptation*, June: 1-17.

answers three questions: (1) How can I explore general urban resilience in Addis Ababa's natural city in a transparent, self-reflexive, and multi-perspective manner? (2) How is urban resilience created in Addis Ababa's natural city? (3) How can the findings of this research be made available to practice and policy making?

Research design

- (15) The gaps in research on African urban resilience theory and the fact that important aspects of urbanity in Addis Ababa have not yet been scientifically described justify an exploratory research disposition for this doctoral thesis. Moreover, a qualitative research approach is chosen for this study, as it aims to understand *how* the natural city generates general urban resilience. Finally, the pursuit of a holistic understanding of resilience processes in the natural city justifies a single-case study design. Thus, this doctoral thesis is in contrast to most existing empirical urban resilience research, which is quantitative and aimed at optimizing the existing urban system.
- (16) The cornerstones of a single-case study and the exploratory research disposition lead to the selection of the Grounded Theory approach (GTM) as the overarching framework for this thesis. It is an evidence-based approach with an abductive reasoning logic that has been well tested in a large number of social science and interdisciplinary research projects. GTM's essential principle is to assign keywords (codes) to as many contrasting qualitative data as necessary and to develop a theory from these codes in an iterative process.
- (17) Following the principle of multi-perspectivity, this work combines three data-based perspectives: expert interviews, interviews with residents, and street scene photography. The study presents and analyzes them in three separate steps in order to create a discourse between the different perspectives that is comprehensible to the reader. In a final step, these three perspectives are synthesized and brought together to form an overarching grounded theory.
- (18) Particular methodological rigor and transparency as well as the embedding of the resulting theory into wider existing theory ensures the credibility of this dissertation's outcomes. Wider potential is ensured through the replicability of the method.

Main findings and outcomes

- (19) Based on the data from the natural city of Addis Ababa, this study develops the model of *natural urban resilience*. This is a form of general urban resilience that goes on without government funding or coordination, i.e. it is inherent or "natural". Its processes help the residents of the natural city to cope with a variety of stresses and shocks while also enabling them to thrive to a limited degree. However, it is volatile and can easily be affected by long-term stresses such as unemployment or regulations on upgrading. The natural urban resilience model consists of four change mechanisms and two resource cycles.
- (20) The four change mechanisms are called *natural pathways to resilience*. These are called *adaptation*, *upgrading*, *mitigation*, and *resistance*. They are mechanisms of system change that interact with and complement one another while occurring "naturally" in the natural city, i.e. they are self-organizing.
- (21) The two resource cycles are the adaptive cycle and the learning cycle. The former describes the cyclical accumulation and release of resources. However, this dissertation observes (as other researchers have done before) that the adaptive cycle does not adequately reflect the ability to learn in urban systems. Therefore, I develop the learning cycle that explains the cyclical accumulation

and release of knowledge. It follows the rhythm of the adaptive cycle but serves other natural pathways to resilience than the adaptive cycle.

- (22) This study concludes that deleting the natural city entirely would severely diminish Addis Ababa's ability to develop sustainably in the future. This is because its urban morphology and social structure embedded *mixity* decisively contributes to the adaptability of the natural city. Mixity is characterized by a hierarchy of streets (main roads, neighborhood streets, and alleyways) as well as a small-scale side-by-side of two contrasting urban typologies: *main streets* and *sefers*. Removing this mixity leads to an unprecedented spatial divide of individual resilience in the city which has been shown to cripple a city's overall resilience.
- (23) In order to make the model of natural urban resilience available for urban planning practice and policymaking, this thesis introduces a pattern language. It deconstructs and translates the complex theoretical model into individual and practical design or policy recommendations. Furthermore, these patterns are interlinked and expandable, thus offering a flexible, bottom-up, yet goal-oriented alternative to traditional master plans or political roadmaps.

Recommendations for future research

- (24) This doctoral thesis recommends further studies with complementary scopes, such as a qualitative multi-case study in Addis Ababa, to extend the existing number of patterns and to complement the model if necessary. Furthermore, the research approach could be transferred to other Ethiopian or African cities to enable them to understand which practices and urban actors contribute to their natural urban resilience. This would also help to understand which aspects of the model differ from place to place and which do not.
- (25) As this study focuses on the urban and neighborhood scale, this dissertation recommends a research project that focuses on the interconnection between rural and urban areas. This could shed light on the dependency of general urban resilience on rural-urban ties, which are particularly strong in African cities complementing the model of natural urban resilience further.
- (26) There is more to understand about the natural city as an African urban typology. It needs more scientific attention before it vanishes in the wake of the inner city's complete makeover because it has the potential to create an urban identity for Addis Ababa away from Chinese or Western role models.

Recommendations for practice

- (27) This thesis recommends that Addis Ababa's inner-city is not entirely demolished. A middle ground needs to be found between the understandable drive to modernize the city and the need to preserve the natural city for resilience, long-term learning, and the development of a *genius loci* that combines traditional and modern, local and global identities.
- (28) The potential of the natural city needs to be exploited for *strategic resilience building*. This might not only include taking steps towards strengthening the city's general urban resilience but also reconsider the way how planning is done in the city right now (top-down, master plans, etc.).
- (29) To this end, this study introduces the "Patterns of natural urban resilience" as a starting point of how the complexity of urban resilience could be transferred into manageable units of consideration around which policy and planning could be developed.