

Mega Cities Mega Challenge

Informal Dynamics
of Global Change

Insights from Dhaka, Bangladesh
and Pearl River Delta, China



Borntraeger Science Publishers

Frauke Kraas, Kirsten Hackenbroch,
Harald Sterly, Jost Heintzenberg,
Peter Herrle and Volker Kreibich (Eds.)

Mega
Cities
Mega
Challenge



Urban transformation in
Guangzhou

Photo: Frauke Kraas

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Dhaka harbour

Photo: Frauke Kraas



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Pearl River Delta, China

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Transformation process in Dhaka
Photo: Frauke Kraas

Back cover:
Urban disparities in Dhaka
Photo: Frauke Kraas

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In memoriam Hans-Georg Bohle, Detlef Ipsen und Günter Mertins



Urban Market in Dhaka

Photo : Kirsten Hackenbroch

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In May 2005, the Senate of the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) endorsed the priority programme 'Megacities – Megachallenge: Informal Dynamics of Global Change' (SPP 1233). Its idea and aim was to gain deeper understanding of one of the most important mechanisms and practices of worldwide urbanisation – the dynamics of informality within megacities.

Between 2006 and 2013, thirteen joint international research groups could - within the framework of this programme - conduct intensive research work in and with colleagues from Dhaka/Bangladesh and the Pearl River Delta (PRD)/China. Thus, altogether more than 120 colleagues, among them numerous PhD candidates and PostDoc scholars, from sixteen different disciplines enjoyed the privilege of interdisciplinary and international research and exchange. In more than 250 publications, the rich findings and new insights have been elaborated and explained in detail. They are visible proof of the deep mutual learning process experienced by scholars from Bangladesh, China and Germany – who shared their knowledge and perspectives in order to enhance understanding of processes, mechanisms, agents and agency that contribute to the informal drivers of and negotiations within megacities. The present book documents the conceptual frame, the aims and perspectives, the learning process and pathways, the research findings and recommendations of SPP 1233 in Dhaka and the Pearl River Delta.

The priority programme could not have been conducted without the long-standing collaboration and constant support of countless dedicated scholars in numerous universities and institutions in Bangladesh, China and Germany. We are sincerely thankful to many colleagues, department heads, officials, staff members and other individuals who, with great kindness and patience, supported the work with information, data and advice, and shared knowledge and experience over many years. First and foremost, we would like to express our sincere thanks to the German Research Foundation (DFG) and all the evaluators and colleagues involved for having enabled the thirteen research teams to participate in flagship research in the emerging field of mega-urbanisation. Particularly, we are indebted to Dr. Johannes Karte from the German Research Foundation for his invaluable support and very trustful cooperation for more than ten years. We are most sincerely thankful to numerous colleagues in Bangladesh and China for their trust, support and openness to jointly explore and work with us in the joint research programme and projects over the many years in which the SPP gained shape. We owe sincere gratitude to the Rectors and Heads of the Department of Urban and Regional Planning, Bangladesh University of Engineering and Technology (BUET) in Dhaka and the School of Geographical Sciences and Planning, Sun Yat-sen University in Guangzhou as our lead partner institutions. Many colleagues from further institutions – all named later in this book – provided valuable support to the research work and deserve heartfelt thanks. We thank all our colleagues and project team members – all personally named later in the book – for their strong commitment, their creative ideas and passionate engagement over many years.

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Introduction

Korail in Dhaka

Photo: Kirsten Hackenbroch



Introduction to the SPP

Frauke Kraas, Kirsten Hackenbroch, Harald Sterly, Jost Heintzenberg, Peter Herrle and Volker Kreibich

In May 2005, the Senate of the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) endorsed the priority programme ‘Megacities – Megachallenge: Informal Dynamics of Global Change’ (SPP 1233). For seven years (2006-2013), thirteen joint, international and interdisciplinary research groups conducted research in Dhaka, Bangladesh, and the Pearl River Delta (PRD), China, within the framework of this programme. Seventeen German and eleven Chinese and Bangladesh universities with approximately 120 researchers, among them thirty-seven PhD candidates and thirteen PostDocs were involved. The strongly interlinked research projects investigated the informal aspects of mega-urban dynamics and their interrelations with global change processes.

The aims of the priority programme (SPP) were to gain a deeper understanding of the different forms, processes and practices of informality and to contribute to the development of theoretical approaches and models suitable for the general explanation of informal processes and structures in megacities.

This implied

- Further development of theoretical concepts of the mega-urban, national and global organisation of society, economy, politics and their interrelations,
- (Re)conceptualisation of informality with a system of concepts better representing the complex, multi-layered and dynamic reality,
- Further deepening of the understanding of informal institutions and processes as well as their relevance for mega-urban dynamics and actors, and
- Further development of existing models and scenarios, especially considering multidisciplinary approaches, quantitative and qualitative methods and the complex dynamics of mega-urban systems.

Four key problem areas, identified by their highly dynamic nature and considerable social relevance, were central to the programme:

- The loss of planning control and governability and the influence of new forms of governance,
- The dominance and differentiation of urban economies,
- The complexity and dynamics of material and resource flows, and
- The multi-layered dynamics of settlement development.

The complex and dynamic nature of mega-urban processes requires a dedicated interdisciplinary and

Figure 1.1 Research projects of the Priority Programme (SPP 1233)

SSP Research in Dhaka

SSP Research in PRD

	Phase 1 2006 – 2008	Phase 2 2008 – 2011	Phase 3 2011 – 2013
	The struggle for urban livelihoods and the quest for a functional city. Reconciling informal and statutory planning institutions in Dhaka, Bangladesh → Prof. Dr. Sabine Baumgart, Prof. Dr. Volker Kreibich (Technical University Dortmund)		Spatial transformation and informal urban governance in Dhaka, Bangladesh → Prof. Dr. Sabine Baumgart, Prof. Dr. Volker Kreibich (Technical University Dortmund)
	The megaurban food system of Dhaka/Bangladesh → Prof. Dr. Hans-Georg Bohle (University of Bonn), Dr. Wolfgang-Peter Zingel (University of Heidelberg)		Multiple modernities in the megacity? Economic and spatial restructuring of food markets in Dhaka, Bangladesh → Prof. Dr. Hans-Georg Bohle (University of Bonn), Prof. Dr. Michael von Hauff (Technical University Kaiserslautern)
	Informal settlements, economic and environmental change, and public health - Strategies to improve the quality of life in Dhaka (INNOVATE) → Prof. Dr. Wilfried Endlicher, Prof. Dr. Elmar Kulke, Prof. Dr. Patrick Hostert (all Humboldt University Berlin), Prof. Dr. Alexander Krämer (University of Bielefeld)		
		Natural hazards and climate change in Dhaka: future trends, social adaptation and informal dynamics → Prof. Dr. Boris Braun (University of Cologne), Prof. Dr. Clemens Simmer (University of Bonn)	
	Border-drawing and spatial differentiation of urban governance modes in the Pearl River Delta – with special regard to informal development and self-organization → Prof. Dr. Uwe Altröck (University of Kassel), Dr. Michael Waibel (Hamburg University), Prof. Dr. Werner Breitung (Sun Yat-sen University)	Governance in time: Spatial differentiation and temporal change of urban development and redevelopment in a context of multiple transitions and informal growth in the PRD → Dr. Michael Waibel (Hamburg University)	The governance of spatial and economic restructuring informal dynamics of the maturing mega-city → Dr. Michael Waibel (Hamburg University), Prof. Dr. Uwe Altröck (University of Kassel)
		Governability, borders and urban citizenship → Prof. Dr. Werner Breitung, Prof. Dr. Luigi Tomba (Australian National University), Prof. Dr. Uwe Altröck (University of Kassel)	Governability, borders and urban citizenship → Prof. Dr. Werner Breitung (Sun Yat-sen University), Prof. Dr. Luigi Tomba (Australian National University)
	Analysis of informal dynamics in mega urban areas – Based on spatial structure and steering mechanisms focused on water in the Pearl River Delta → Prof. Dr. Rafiq Azzam, Prof. Dr. Christian L. Krause (Technical University Aachen University), Prof. Dr. Rainer Wehrhahn (University of Kiel)		
	Internal and international migrant communities in the Pearl River Delta/China – linking informal migration dynamics, global change and urban health → Prof. Dr. Frauke Kraas (University of Cologne), Prof. Dr. Bettina Gransow (Free University Berlin)		
	Satellite-based aerosol mapping over megacities: Development of methodology and application in health and climate related studies → Prof. Dr. Alexander Krämer (University of Bielefeld), Prof. Dr. Jost Heintzenberg (Leibniz Institute for Tropospheric Research), Prof. Dr. Manfred Wendisch (University of Leipzig)		
	The Dynamics of Peri-urbanization in the Pearl River Delta: Emerging Land Use patterns, Urban Villages and their Linkages to Global Mechanisms → Prof. Dr. Peter Herrle (Technical University Berlin), Detlev Ipsen (University of Kassel)		
	Regional agility and upgrading in Hong Kong and the PRD → Prof. Dr. Javier Revilla Diez, Dr. Daniel Schiller (University of Hanover), Prof. Dr. Rüdiger Soltwedel, Dr. Dean Spinanger, Dr. Dirk Dohse (Kiel Institute for the World Economy), Prof. Dr. Ingo Liefner, Dr. Stefan Hennemann (University of Gießen), Prof. Dr. Frauke Kraas (University of Cologne)	Regional agility in the wake of crisis: Towards a new growth model in the Greater Pearl River Delta? → Prof. Dr. Ingo Liefner, Dr. Stefan Hennemann (both University of Gießen), Prof. Dr. Frauke Kraas (University of Cologne), Prof. Dr. Javier Revilla Diez, PD Dr. Daniel Schiller (both University of Hanover), Dr. Dirk Dohse, Prof. Dr. Rüdiger Soltwedel (both Kiel Institute for the World Economy)	

multi-sectoral approach, with a special focus on the interfaces and interactions between the diverse urban subsystems – taking into account both ‘horizontal’ (sector- and discipline overarching) and ‘vertical’ (scale overarching, i.e. global, regional, local and sub-local) interconnections. The four core problem areas were thus investigated by interdisciplinary research teams dedicated to a close collaboration between approaches of social and natural sciences. *Figure 1.1* provides an overview of the research projects that were carried out under the umbrella of the SPP between 2006 and 2013.

Research Areas

The research areas were selected based on the idea of contrasting different forms of statutory organisation in

Figure 1.2 A guide to this publication

1 Introduction		
2 Megacities		
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3.1 Governance Processes	3.2 Migrants in the City	4.1 Coordinating the Research Programme
3.3 Rising Economies	3.4 Risks and Vulnerabilities	4.2 Research Partners
3.5 Public Health and Urban Environments	3.6 Global Change	4.3 Methodological Challenges
3.7 Informality		4.4 Interdisciplinarity
5 Future		6 Follow up
5.1 Objectives and Outcomes of the Research Programme	5.2 Reflections on the Research Process	6.1 References
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		6.3 Editors and Authors

order to understand the accompanying and potentially case-specific informal dynamics and relations to global change. Accordingly, the Pearl River Delta was selected as a research area in a centralised state where it was assumed that informality would only partially be possible. Dhaka was selected based on its comparatively decentralised state organisation and a high degree of loss of governability and the assumption that informality would be particularly pronounced.

The Pearl River Delta – consisting of nine prefectures of Guangdong Province, Hong Kong SAR and Macau SAR – is a poly-nodal mega-urban region. Since the mid-1980s, economic reforms and massive investment have rapidly turned the region into one of China’s economic powerhouses. Seven projects with twelve



Fangcun tea market in Guangzhou

Photo: Frauke Kraas

Young waste recycler in Dhaka

Photo: Harald Sterly

German and Chinese universities were established to conduct research in the urban centres of the Pearl River Delta, among them Guangzhou, Dongguan, Shenzhen and Hong Kong.

Dhaka is considered to be one of the world's fastest growing urban centres, with a population increase of almost 470 % during the last quarter of the 21st century. Four projects conducted research in Dhaka, comprising of five German universities and their partner institutions in Bangladesh.

A strong cooperation with partner universities in Bangladesh and China enabled the international exchange of knowledge and experiences and the joint development of scientific approaches and methods.



Urban modernisation in Dhaka

Photo: Kirsten Hackenbroch

A guide to this publication

This publication addresses the academic community and policy makers dealing with the above-mentioned themes in large agglomerations and mega-urban environments. The SPP research themes are thus presented according to thematic clusters, integrating the perspectives of the individual research consortia. *Chapter 1 'Introduction'* presents the structure of this book. *Chapter 2 'Megacities'* provides an overview of the current framing of megacities and introduces the two research sites, Dhaka and the Pearl River Delta. The authors illustrate how the SPP research and selected other research has contributed to knowledge production about these two megacities. *Chapter 3 'Research'* details the research results of the SPP in the fields of urban growth and settlement development,

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Rikshaw puller in Dhaka

Photo: Harald Sterly



Rice transportation in Dhaka

Photo: Frauke Kraas



governance processes, migrants in the city, mega-urban economies, risks and vulnerabilities, public health and urban environments. The chapter closes by bringing the SPP research to a more abstract level, discussing how the research has contributed to an improved understanding of the dynamics of global change and informality. *Chapter 4 'Pathways'* illustrates how the SPP and its projects have arrived at the integrative research results, looking at coordination efforts behind the scene and the challenges that the interdisciplinary SPP had to master. *Chapter 5 'Outlook'* summarises the recommendations emerging from the SPP research, addressing both policy makers concerning potential responses to mega-urban problems and academia concerning future research on megacities.



Village-in-the-city in
Guangzhou

Photo: Harald Sterly



Megacities

River view in Guangzhou

Photo: Frauke Kraas

