

Climate Risk Governance
in Bhubaneswar, India: An evolutionary perspective

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

URBAN AND REGIONAL PLANNING

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Abstract

This dissertation seeks to examine the evolving politics of planning and governance of climate risks in Bhubaneswar city in India, by analyzing how climate risk governance has evolved and its implications on future adaptation possibilities. Southern cities such as Bhubaneswar have been at the forefront of local-scaled exploration and implementation of climate planning, policymaking, and action in the last two decades, often drawing upon normative ideas inspired by and embedded in resilience and social-ecological systems theory. Yet, the complexity and evolving dynamics of changing governance contexts remain largely unexplored due to changing risks, vulnerabilities, adaptation practices, knowledge as well as fast-paced urbanization and development priorities. In the absence of observation of the above in governance, planning practice itself can result in new and unobserved risks emerging from decisions to combat climate risk, making climate adaptation invariably more complicated and challenging to attain.

In response to the above problem, there has been increasing scholarly attention and recommendation for climate practice in cities to be more context-sensitive. Despite the advancing knowledge, most climate practice emerging in southern cities remains oblivious to the existing realities of southern cities, particularly in terms of blindness to issues of dynamic formal/informal institutional relations, conflicts, and discursive construction and deployment of risks and vulnerabilities. To address this gap, this study aims to advance understanding of the co-evolutions between elements of climate risk governance (actors, institutions, and discourses) in Bhubaneswar city. The overarching research question that guides this dissertation is: How has climate risk governance in Bhubaneswar evolved in response to environmental and development challenges in the last two decades? The time frame from 2008 to 2021 is considered in this study, beginning with the first state climate action plan in 2008 till the time field work was carried out for the study. To answer the question, I focus on the mutual interactions and co-evolutions between different elements of governance, i.e. actors, institutions, and discourses, within changing system/environment relations. I adopted a constructivist and interpretive lens for this study and used a qualitative case study approach for this study.

This dissertation is structured as a series of four articles that present distinct inquiries that are intended for journal publication (also known as paper-based format). The articles presented are broadly guided by the above overarching question, while I ask and answer precise questions and objectives within each article. The first article is a systematic literature review based inquiry on the elusive but rapidly emerging area of southern urbanism, including its many theoretical propositions, conceptual landscape, and categorical differences between the cities in the North and South. This helped me arrive at contextual characteristics of southern cities that I employed as starting points in the next articles. In the second article, through Jäger & Maier's Critical Dispositive Analysis of documents, I focus on how climate risk and vulnerability in the climate plans and policies in Bhubaneswar are discursively created, deployed, and co-evolve over time, and how they limit and provide opportunities for policy and governance responses. This is followed by the third article, wherein I explore a novel understanding of climate risks in local contexts through the constantly changing formal/informal institutional interactions. And finally, in the fourth article, I advance knowledge on the usefulness of studying climate shocks and social conflicts together through an evolutionary and social-ecological systems lens, to understand climate risk governance issues, including their effects on limitations and opportunities in adaptation to climate change.

Collectively, the findings demonstrate that local adaptation to climate change is not limited to formal plans/policies, while the risks identified formally are not comprehensive at any point in time. I highlight the risks that emerge out of climate plans lacking southern sensibilities, particularly from the non-observance of formal/informal interactions, gaps between rhetoric in formal plans/policies and action, and underestimating the combined effects of climate shocks and existing social conflicts in planning for climate change. The study findings reveal the underlying politics and power relations that influence the construction and reconstruction of climate risk and vulnerability. Conversely, the changing relations between elements of governance themselves result in changing power relations through the creation of new governance contexts (actor/institutional configurations and discourses), and new risks and opportunities for different actors.

Preface

This dissertation is an original work by Debadutta Parida. The research project, of which this dissertation is a part, received ethics approval from the University of Alberta Research Ethics Board 1, “Investigating the politics of climate resilience planning and governance in Indian cities: Case of Bhubaneswar city”, Ethics consent number *Pro00098769*, on June 8, 2020.

The dissertation is structured in an article format, as a series of four articles written for publication. It includes an introduction and conclusion chapter (Chapters 1 and 6 respectively), and the chapters in-between are independent papers in journal article format written for publication rather than traditional book chapters that are not necessarily independent articles (Chapters 2 to 5). The introduction chapter (Chapter 1) frames the overall body of work, and the conclusion chapter (Chapter 6) presents the overarching summary of the inquiries across the articles and clarifies the overall contributions to knowledge.

Debadutta Parida is the sole author of Chapters 1 and 6, supervised by Dr. Sandeep Agrawal who provided ongoing assistance. These chapters were not intended for publication.

Debadutta Parida is the first author of Chapters 2-5 which have all been submitted to peer-reviewed journals, out of which Chapters 2, 3 and 5 have been published, while Chapter 4 is under review in the publication process. These chapters have one or more co-authors. For these co-authored chapters, Debadutta Parida conceptualized the research, developed methodologies, performed fieldwork for data collection and analysis, and wrote all the paper drafts.

The detailed contributions of the co-authors are as follows:

Chapter 2:

Southern Urbanism: A Systematic Review of Concepts, Debates, and Future Directions

Dr. Sandeep Agrawal is the co-author of this article. Dr. Agrawal provided supervisory guidance throughout the process of research and methodology design, implementation, analysis, and feedback on each draft written by Debadutta Parida.

Chapter 3:

Analyzing vulnerability portrayals across climate risk discourses: An evolutionary perspective of climate governance in India

Dr. Sandeep Agrawal is the co-author of this article. Dr. Agrawal provided supervisory guidance throughout the process of research design, implementation, analysis, and feedback on each draft of the article.

Chapter 4:

Understanding risk in climate governance: the importance of formal/informal institutional interactions. Insights from Bhubaneswar, India

Dr. Kristof Van Asche and Dr. Sandeep Agrawal are the co-authors of this article. Dr. Kristof Van Assche provided feedback and theoretical inputs on the design and analysis in each draft of the article. Dr. Agrawal provided supervisory guidance throughout the process and feedback on each draft of the article.

Chapter 5:

Climate Shocks and local urban conflicts: An evolutionary perspective on risk governance in Bhubaneswar, India

Dr. Sandeep Agrawal and Dr. Kristof Van Assche are the co-authors of this article. Dr. Kristof Van Assche provided feedback and theoretical inputs on the design and analysis in each draft of the article. Dr. Agrawal provided supervisory guidance throughout the process and feedback on each draft of the article.

The outcome of this research work has been published and/or presented as listed below:

Peer-reviewed Journal articles:

1. Chapter 2 - Parida, D., & Agrawal, S. Southern urbanism: a systematic review of concepts, debates, and future directions. *GeoJournal* (2022).
<https://doi.org/10.1007/s10708-022-10761-x>;
2. Chapter 5 - Parida, D., Assche, K. V, & Agrawal, S. (2023). Climate Shocks and Local Urban Conflicts: An Evolutionary Perspective on Risk Governance in Bhubaneswar. *Land*. <https://doi.org/10.3390/land12010198>

3. Chapter 3 - Parida, D., & Agrawal, S. (2023) Analyzing vulnerability portrayals across climate risk discourses: An evolutionary perspective of climate governance in India. *Climate and Development*. <https://doi.org/10.1080/17565529.2023.2178254>
4. Chapter 4 - Parida, D., Assche, K. V, & Agrawal, S. (2023). Understanding risk in climate governance: the importance of formal/informal institutional interactions. Insights from Bhubaneswar, India (under review in *International Journal of Disaster Risk Reduction*, Elsevier)

Conference presentations:

1. **Parida, D. (2021).** Who drives change? An evolutionary perspective on the discursive shifts on climate governance in India. In American Collegiate Schools of Planning Annual Conference (ACSP) 2021 in Miami, USA (October 7-8, 2021).
2. **Parida, D (2020).** Climate action, informal urban practice, and the politics of inclusion: Case of Bhubaneswar city, India. In American Collegiate Schools of Planning Annual Conference (ACSP) 2020 in Toronto, Canada. (November 5-8, 2020).
3. **Parida, D (2020).** Climate Change and Urban Informality in the Global South: Insights from Bhubaneswar, India. In ATLAS Student Talk Series 2020, Department of Earth and Atmospheric Sciences, University of Alberta.

Acknowledgments

With the deepest sense of regard, I would like to take this opportunity to offer my gratitude to all those who have been part of the journey of my doctoral work. Firstly, I would like to thank my supervisor, Dr. Sandeep Agrawal, for inviting me and providing me with the opportunity to start my doctoral work here. I appreciate his continuous support, advice, and positive cooperation throughout my doctoral study in Canada. The Ph.D. process was exhausting at times, and I will always appreciate his help during the most challenging times of the Covid-19 pandemic.

Many thanks to my committee, Dr. Varghese Manaloor and Dr. Dia Da Costa for their support, guidance, and feedback which constantly improved this study. I am indeed grateful to have had this opportunity to learn from you. A very special moment of gratitude to Dr. Kristof Van Assche who constantly encouraged me to write when the work was overwhelming, and whose open-minded conversations and insightful suggestions greatly shape my thoughts in this report, and outside of it as well. I shall forever remain indebted to you for inspiring me to go in directions I did not imagine were possible for me to go.

I would like to thank the constructive collaboration by various officials in the BDA, BMC, OSDMA, OSPCCB, TERI, NIUA, and IIHS who helped provide me with very useful information and insights for this research during my fieldwork at the peak of the Covid-19 pandemic. I would also like to thank all my interview participants who very generously agreed to share with me their time and wisdom. A very warm thank you to all my colleagues at the U of A - Khan, Jeong Won, Nilusha, Pradeep, Janak, Dinara, Neelakshi, and Juan. Special mention to my closest friends – Deepankar and Samar for your support at all times. A warm appreciation to AcademicChatter and Amitabh Jha (DarvaX Trader) on twitter for keeping me sane and maintaining my curiosity during the worst times of writing the dissertation.

I would like to thank my family for always giving me the freedom to pursue my ideas and dreams. You will remain my biggest strength as usual. And finally, my deepest appreciation to you, Neethi. I could never thank you enough for the prevailing trust, faith, love, and support during this challenging period of our lives. I am looking forward to better times with many, many years together. Needless to say, I promise never to do a Ph.D. again.

Debadutta Parida, Edmonton, 2023

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List of Abbreviations

BDA - Bhubaneswar Development Authority
BDPA- Bhubaneswar Development Plan Area
BJD – Biju Janata Dal
BJP – Bharatiya Janata Party
BMC - Bhubaneswar Municipal Corporation
CAS- Complex Adaptive Systems
CDA- Critical Dispositive Analysis
CWC – Central Water Commission
EGT- Evolutionary Governance Theory
GHG- Greenhouse Gases
GST - General Systems Theory
IIT – Indian Institute of Technology
IMD – The India Meteorological Department
INCOIS – Indian National Centre for Ocean Information Services
ISRO - Indian Space Research Organisation
MLG - Multi-Level Governance
MoEFCC - Ministry of Environment, Forest and Climate Change of India
NAPCC - National Action Plan for Climate Change
NDRF – National Disaster Response Force
NGO – Non Government Organization
NITI Aayog - National Institution for Transforming India
NLTA – Non Lending Technical Assistance
NRSC - National Remote Sensing Centre
OSDMA – Odisha State Disaster Management Authority
ODRAF - Odisha Disaster Rapid Action Force
SAPCC - State Action Plan for Climate Change
SES - Social-ecological systems
SPCB - State Pollution Control Board
UNDP - United Nations Development Programme
UNFCCC - United Nations Framework Convention on Climate Change

Examining Committee Membership

The following served on the Examining Committee for this thesis:

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Chapter 1. Introduction

1.1. Research Context

This dissertation is situated within the field of climate governance and urban planning. Governance here broadly refers to the taking of “collectively binding decisions in a community by a diversity of actors, inside and outside government, with formal roles, and without formal roles” (Beunen, Assche, & Duineveld, 2015, p. 339). Climate governance refers to the governance of mechanisms and responses “aimed at steering social systems towards preventing, mitigating or adapting to the risks posed by climate change” (Jagers & Stripple, 2003, p. 388). Using this lens, urban planning is seen as embedded within a governance system, aimed at coordinating various practices and policies to organize urban space. Specifically, my interest lies in understanding the realities of envisaging and implementing climate policies and plans within existing urban practices in the context of the southern city of Bhubaneswar, India between 2008 to 2021¹.

Various climate governance theories and frameworks can be traced to social-ecological systems and complexity approaches to cities in the global South. Many of the formative years (the late 2000s and early 2010s) of climate governance were (and in many places continue to be) implicitly based on modernist and prescriptive theories that aim to advance resilience as a normative goal (Meerow, Newell, & Stults, 2016; Sharifi & Yamagata, 2014; Tyler & Moench, 2012). At the same time, these normative ideas have come under scrutiny by scholars who have questioned their usefulness (Davoudi et al., 2012; Hillier, 2015; Mackinnon & Derickson, 2012). In the context of Indian cities, the impact of these theories and implementation remains vague with mixed results (Bahadur & Thornton, 2015; Chu, 2015; Singh et al. 2021). Unfortunately, social-ecological systems-based practice (especially resilience plans and policies) does not adequately capture the existing realities in many southern cities in a variety of ways, by remaining blind towards the informal nature of governance processes and context (Agrawal & Perrin, 2009; Hayoz, 2015; Mielke, 2022). Resilience and social-ecological systems-based governance practices often fail to capture the permanent nature of local urban conflicts between groups and rationalities (Bhan, 2019;

¹ The formal climate plans in Bhubaneswar were released in 2010, which is the natural starting point of analysis in this study.

Watson, 2009a), and fail to recognize the constructed nature of risk and vulnerability, two of the central ideas of climate governance (Aragón-Durand, 2011; Heijden, 2021).

The above gap persists despite the growing body of knowledge in climate governance that is skewed heavily in the direction of scrutinizing national and international policy and action on climate change (Dubash & Jogesh, 2014; Jogesh & Paul, 2020; Revi et al., 2014). Previously, scholars have attempted to capture the climate interventions in the local and regional contexts, focusing on the role of formal institutions (international agencies and local state actors) in specific projects that advance resilience and adaptation (Bahadur, 2014; Chu, 2015; Khosla & Bhardwaj, 2019; Legese et al. 2018; Shatkin & Soemarwi, 2021). There is a relatively lesser exploration of the constantly evolving complex interactions between local climate risk observations, assessment, and management on the one hand, and the past and present nature of urban politics on the other.

This study focuses on the complexity and co-evolutions of different elements of climate risk governance. The overarching research question guiding the research is: How has climate risk governance in Bhubaneswar evolved in response to environmental and development challenges in the last two decades? To answer the question above requires scrutiny of urban politics on climate issues using a local lens in the southern cities context. Presumably, here the main assumption is that a governance lens can help one make sense of the local complexities around climate change. Specifically, in the present context, the different elements refer to various local actors, institutions, and discourses on climate risk and vulnerability that play a key role in decision-making. Evolution here refers to co-evolution which refers to the “entwined evolution (change in time) of two systems or entities, whereby changes in one affect changes in the other” (Beunen et al. 2015, p 336). Change is seen as contingent and unavoidable, which brings with it new risks as well as opportunities that need to be constantly managed by actors and institutions within particular governance contexts.

Through four distinct articles, this dissertation makes several novel contributions to the literature on climate governance and southern urbanism, while making broad observations on future possibilities in practice. Collectively, the articles will help advance our understanding of local climate governance processes and contexts in southern cities. They will help make sense of the co-evolutions between elements of governance (between actors, institutions, and discourses), shedding light on the positions from where the climate plans and policies are coming, and the effects they have on the elements as well as practice. The body of work

generated in the articles focuses on the dimension of temporality in climate governance – specifically, I explore the role of discursive evolution of climate risks and vulnerability, co-evolutions of formal and informal actors and institutions, and entanglements between urban conflicts within informal settlements and climate shock events. In doing so, I add useful theoretical and empirical perspectives in climate governance and southern urbanism literature, while adding more texture and space for reflexivity in the emerging evolutionary governance theory, broadening its scope to further exploration in southern cities contexts.

1.2. Case of Bhubaneswar city

Historical context

Bhubaneswar is a historic city in eastern India and the current capital city of the state of Odisha (see Figure 1). While the older parts of the city, locally known as the ‘Old town’ area existed for over two thousand years; the city has grown into a contemporary urban center in the past seven decades. A year after the Indian independence, in 1948, Bhubaneswar was born out after a decade-long struggle for a local identity of the ‘Odia’ people as well as to accommodate the future national aspirations of new cities along secular lines, through modernist practices consistent within a socialist lens that was actively pursued by the then national and state governments. Bhubaneswar (new town) was one of the few selected towns where international architects and planners were involved in providing a grand vision for the cities (other cities in this category are Chandigarh, Jamshedpur, and New Delhi). The initial plan of the new city of Bhubaneswar was designed by the German planner Otto Koenigsberger and the architect Julius Vaz.

The re-designing of a new vision meant an opportunity to create a new evolutionary arc, this was certainly reflected in the spatial design through the dominance of modernist principles of garden city, neighborhood unit planning, rigid street hierarchies, and preference for expert knowledge over local stories. Koenigsberger believed in making a completely secular city with no room for tradition while allowing some room for the existing religious structures within the masterplan to provide interesting viewpoints to accentuate the streets (Kalia, 1994).

Table 1 Population growth in Bhubaneswar Municipal boundary area (Source: Census data)

Year	Area in sq. km.	Population	Growth rate in %	Population density
1951	26.09	16,512	-	633
1961	50.25	38,211	131.41	760
1971	65.05	105,491	176.07	1622
1981	92.91	219,211	107.80	2359
1991	124.70	411,542	87.73	3300
2001	135.0	658,220	59.93	4875
2011	135.0	840,834	27.74	6228

Table 2 Status of infrastructure and municipal services in Bhubaneswar city

	No. of households	Percentage
Households with access to tap water(from treated source)	1,23,869	62.96 %
Households with access to electricity	1,70,241	86.53 %
Households with toilets	1,42,225	72.29 %
Household connected with main city drainage	1,35,654	68.95 %
Households with access to mobile phones	1,27,371	64.74 %
Households with access to banking facilities	1,42,717	72.54 %
Ownership pattern(owned/rented)	92,980	Owned - 47.26 %
Solid waste management system	Door to door collection	
Sewerage system	Underground sewerage system (in progress)	

Total number of households = 196,743; Number of households in slums = 80,665 (41 per cent of total households); Source: Census of India, 2011 and Bhubaneswar Smart City Mission application, 2015

While the formative years were built around conflicting rationalities around the vision and identity of the city, the subsequent decades were an expression of the urban elite² in Bhubaneswar to explore and shape the identity of the city and the state, unlike Chandigarh where many of the architectural and development regulations are still followed today (Kalia, 2006). Design-oriented planning turned towards an institutionalist³ approach by the 1970s

² Here the term urban elite refers to rising middle class, corporate actors, political actors as well as bureaucrats

³ Planning shifted from spatial land use planning toward designing of specific rules of coordination among actors, and the roles of actors in the organization of space.



Figure 1 Map of India showing locations of Odisha state and Bhubaneswar city (Base map sourced from www.bharatmaps.gov.in)

and 1980s. While the master plans were focused on land use and zoning instruments, the actual spaces reflected limited success in terms of their implementation. By the 1990s and 2000s, the city grew and the local economy boomed (see Tables 1 & 2 for a general demographic and socioeconomic context). In practice, the planning system is now dominated by institutional approaches (limited to the management of rules and roles around the organization of city space), especially oriented toward New Public Management, with an increased role of private actors while the role of formal planning institutions and actors is limited to the enforcement of broad rules and regulations.

Climate governance context

The several master plans and urban development policies in Bhubaneswar did not explicitly consider various risks associated with environmental and disaster shocks. A turning point was the 1999 super cyclone which hit the Odisha coast and resulted in massive loss of life (nearly 10,000 people died) and livelihood⁴. The local institutional responses were catalyzed by the 2004 Indian Ocean tsunami, which prompted more reflexivity and action at both international, national, and state levels in India. The quick institutional responses were through new legislation and act on disaster management, state and local level disaster management organizations (new actors), and development of risk knowledge through awareness programs and protocols during pre and post-disaster response and recovery. After the national and state climate action plans were introduced since 2008, it was quickly integrated within the city governance system through a new Climate Change Cell to coordinate actions. In this sense, experience with disasters has had a deep impact on public and institutional memory in Bhubaneswar, which continues to face disaster events, while the nature of these events is now changing due to the effects of climate change such as high intensity and high frequency of climate shocks, changing rainfall patterns and soil salinity change.

Two key actors are relevant in Bhubaneswar, in terms of planning. Bhubaneswar Development Authority (BDA) is a parastatal agency responsible for the preparation and implementation of long-range and annual plans for the overall urban region known as the Bhubaneswar Development Plan Area (BDPA). The Bhubaneswar Municipal Corporation (BMC) is the urban local body of the city responsible for the implementation of plans and policies (prepared by the BDA as well as other state departments), as well as the delivery of services and utilities. The BMC has a political wing (elected mayor and ward representatives) and an executive wing (appointed officers), which are responsible for planning activities in the city including management of land use, infrastructure services, city transport system, housing, and open spaces. The State Climate Change Cell is a key institution for the conception of actions (with technical assistance from international agencies such as the World Bank and UNDP), and the BMC is at the forefront in terms of execution. The Climate

⁴ Between 1999 and 2022, Odisha experienced 11 cyclones, 13 floods and 5 years of drought (with heat waves). While the loss of life was nearly 10,000 in the super cyclone in 1999, disaster management policies following this event meant successful reduction of loss and damage (the ten cyclones after the 1999 event have a combined loss of 156 lives). See Appendix C for a list of significant disaster events in Odisha.

Cell prepares and updates the Odisha State Climate Action Plan⁵ within the broader framework of the NAPCC⁶. The Ministry of Environment, Government of Odisha is the key link between the state and national level in terms of political linkages, while the Climate Change cell is the institutional point of knowledge co-creation in the city and state.

Case selection

My case selection for this dissertation was motivated by five main criteria: (1) a city in quick transition from a medium town to a large city into a metro city soon⁷; (2) fast-paced growth and informal urbanization in the city (demographically and spatially), including a significant population within informal settlements, which in the case of Bhubaneswar is nearly one-fifth of the population in 436 designated slums; (3) location in a widely acknowledged vulnerable regional ecosystem (Bay of Bengal region)⁸; (4) city with recent and frequent experience with extreme events associated with climate change; and (5) local institutional awareness of climatic and non-climatic risks, as well as the existence of specific actors and institutions to address climate governance issues. In the above context, Bhubaneswar makes a good case to understand climate initiatives in the context of existing and evolving development contexts and issues.

1.3. Research question and objectives

The overarching aim of this dissertation is to advance knowledge of local climate governance in the context of southern urban spaces. Climate governance in Bhubaneswar is a dynamic area of governance, with many fast-paced changes in the last two decades. I am particularly interested in making sense of how various elements of climate risk governance (actors, institutions, and discourses) are evolving in Bhubaneswar. Each article presented in the report is guided by a distinct research question, and in some cases sub-questions, however, they are linked with the broad overarching question.

⁵ The most recent updated plan is the State Climate Action Plan 2018-23, which is the third update after previous versions were released by the state in 2010 and 2015. The Action Plan, also known as State Action Plan for Climate Change (SAPCC) is central to any climate based action in the city of Bhubaneswar.

⁶ The NAPCC is a national level action plan launched by the Government of India in 2008, with the objective of balancing between fulfilment of India's development objectives and reducing the emissions impact of its growing economy.

⁷ The current classification of cities in India is as follows: medium cities - population of 0.1-0.5million, large cities –population of 0.5 – 1 million, and metro cities 1 – 5 million. Bhubaneswar, in this context is rapidly growing from a medium sized city in 2001 census to a large city in 2011, and is expected to transition into a metro city in the next census.

⁸ The Bay of Bengal region has been identified as one of the vulnerable hot spots of climate impacts due to rising sea temperature that is triggering change in frequency and intensity of climate shock events in the region including Bhubaneswar (IPCC, 2007b).

Through these chapters, I addressed several gaps in the literature as well as highlighted implications for climate governance. In Chapter 2, I explore the southern urban question through a systematic literature review, to gain a *holistic understanding of southern urbanism* and identify potential characteristics of southern cities that can act as entry points for future work in planning. Results from Chapter 2 also act as starting points in the inquiries in subsequent chapters, particularly the characteristics of southern cities such as informality, vulnerability, and conflict that are highly relevant for planning and climate governance in general. The objective of Chapter 3 is *to gain a deeper insight into the discursively constructed and mutually evolving concepts of climate risk and vulnerability within the formal climate action plans and policies*, two central concepts employed in climate resilience plans and policies. This is followed by Chapter 4, wherein the objective is to understand *how the formal and informal systems in Bhubaneswar interact* in the context of changing climatic and non-climatic risks. Finally, the objective of Chapter 5 is to understand *how urban conflicts in informal settlements in Bhubaneswar interact with climate shock events* to influence climate risk governance paths.

1.4. Three basic assumptions

I present three underlying assumptions that guide the dissertation. The *first* assumption of the study is that cities are complex social-ecological systems (SES). The boundaries between urban areas and their environment are often blurred and unclear (Grove, 2009; Muñoz-Erickson et al., 2016), and cities when imagined this way can be operationally managed and governed through multiple governance approaches, normative ideas (such as resilience and sustainability), and thus can render themselves as useful sites of scholarly inquiry. The *second* assumption is that cities like SES are always in a state of flux, in terms of their interactions between people, organizations, institutions, and the material landscape. Change is permanent and often unpredictable. A crucial part of planning is then to understand change through a conscious mapping of the historical transformation and evolution of a place and its people. And the contingency of the constant interactions within a city makes it complex to comprehend.

Here I arrive at the *third* assumption that a governance lens can help us make sense of complexity in the planning of cities. Planning is embedded within the governance system and can be studied by taking into account multiple meanings (of space and environment) that are

constructed by people that interact to interpret construct, deconstruct and reconstruct many elements of governance.

1.5. Theoretical considerations

I begin here by acknowledging the methodological dilemma of adopting a theoretical framework for this study. Exploration of climate change is not bound by disciplinary boundaries. Scholarly knowledge on climate issues has in the past decades ranged from the natural and social sciences together, resulting in the emergence of many interdisciplinary approaches. Climate governance theories, which I am specifically interested in this study, often did not originate from the discipline of planning, but eventually assumed importance for planning theory as well as practice.

Consequently, while the study is predominantly situated within the discipline of planning, I also combine different disciplinary approaches, drawing upon theories and concepts that can be traced further to ecology, evolutionary biology, geography, sociology, and discourse studies. In general, my theoretical orientation is against modernist planning theories, both in their substantive and procedural forms. Throughout this study, I am drawn towards post-structuralist perspectives within planning, especially focusing on institutionalist planning theories that focus on the organization of rules and roles of coordination between actors and institutions within a particular social and spatial context. While conducting a thorough review of all planning theories is beyond the scope of this study, I will focus on specific theories that have dominated the global as well as local climate discourses in the past few decades.

In the rest of the section, I will first briefly review the two most dominant theoretical categories that are relevant to this study, viz. systems theories, and environmental governance theories. Under these broad umbrellas, I will summarize multiple theories by providing their perspectives on climate issues in cities. Following this, I will present the Evolutionary Governance Theory or EGT, a combinatory theory that is implicitly or explicitly present across all the articles on the case (Chapters 3 to 5). I will end by providing a short compendium of concepts that will be revisited several times throughout the report.

1.5.1. Systems theories

Systems broadly refer to a group of interacting elements that form a unified and distinct whole. Systems are identified and defined by their boundaries, which distinguishes them from other systems within an environment. System theories are interdisciplinary approaches to making sense of reality imagined as systems. I review the most relevant theories for this study viz. General Systems Theory, Social-Ecological Systems theory, resilience thinking and Complex Adaptive Systems theory.

The origins of systems thinking go back to the 18th and 19th centuries, to the idea of ecosystems and interconnectedness of living things, later into biology, and especially evolutionary biology (Darwinian thinking of evolution through survival of the fittest), to mathematics and cybernetics. Of relevance to this are more recent developments in the past fifty years, especially on social-ecological systems and resilience thinking which have dominated planning practice recently (Armitage et al., 2009; Berkes, Colding, & Folke, 2002; Berkes & Folke, 1998; Levin et al., 2013; Olsson, Folke, & Berkes, 2004).

The *General Systems Theory* or GST proposed by Ludwig von Bertalanffy in the 1960s emphasized system/environment distinctions, and the idea of open systems, arguing that systems have permeable boundaries that are open to the exchange of energy as well as matter. He also theorized that systems become complex and more adaptive to their environment with time through the process of emergence of new relations, processes, and new orders. The emergence of higher order is contingent, hence unpredictable. For example, cities with time can emerge or change their character or sometimes collapse (Bertalanffy, 1968; Van Assche, Verschraegen, Valentinov, & Gruezmacher, 2019; Von Bertalanffy, 1972). In the 1970s, Chilean biologists advanced the above by focusing their attention on ‘autopoiesis’, or the capacity of systems to self-organize their internal processes and functions to reproduce themselves and maintain adaptive capacity (Maturana & Varela, 1991).

The above idea traveled to other disciplines, and can be seen dominantly in *resilience thinking* in the 1970s, within ecology, through the seminal work on the concept by Holling, (1973), who described the concept as the “ability of a system to return to absorb change and disturbance and still maintain the same relationships”. Holling distinguished between two varying notions of resilience, ‘engineering resilience’ and ‘ecological resilience’ (Holling, 1996). While engineering resilience refers to the ability of a system to return to a single state of equilibrium, ecological resilience focuses on the ability to ‘persist’, but not necessarily

remain in a single state. Both these approaches are similar in their approach since they both stress the importance of ‘bouncing back’ into a stable state of structure, function, and processes within the system.

The non-equilibrium resilience created a new paradigm in the field of ecology and inspired further study on *social-ecological systems theory* since the late 1980s (Anderies, Janssen, & Ostrom, 2004; Berkes & Folke, 1998; Ostrom, 2007, 2010). Social-ecological systems or SES theory focus on the study of interlinked human (social) and natural (ecological) systems. SES theory originated from the perceived reductionism of resilience theories that tended to ignore the social dimension. Scholars proposed that ecological systems are closely linked to one or more social systems, hence any delineation is artificial and arbitrary (Adger, 2000; Colding & Barthel, 2019; Pickett, Cadenasso, & Grove, 2004).

With the introduction of the social into the earlier versions of resilience, resilience gradually became wider in its scope and applications to cities and regional systems. Resilience by the mid-2000s was associated with not just coping and bouncing back, but included adaptability, defined as the “capacity of an SES to learn, combine experience and knowledge to adjust its responses to changing external drivers and internal processes”; and transformability which is the ability to completely transform “into a fundamentally new system” when the older one becomes untenable (Folke, 2006). This idea likely emerged from *complex adaptive systems* or CAS, which refer to the self-organizing capacity of a system to learn from interactions with the environment to adapt (Thompson et al. 2010; Van Assche et al., 2019). In practice, CAS approaches are seen within attempts to rely on self-organization in local governance as a resilience action (Joshi, 2019). In addition to the engineering, ecological and socio-ecological approaches, resilience thinking has also found applications in other specific areas of disaster risk reduction, risk management, and governance (Coaffee, 2008; Cutter et al., 2003; Cutter, Burton, & Emrich, 2010), and urban studies (Bahadur & Thornton, 2015; Bhamra et al., 2011).

Other scholars however remained skeptical of the use of concepts from the natural systems in social systems, due to the inadequacy of resilience and SES theories to take into account issues of local complexities of governance, politics, and power dynamics (Davoudi et al., 2012; Meerow & Newell, 2016; Vale, 2014), a ‘fledgling canon’ that lacks any

transformative potential when applied in social contexts (Bahadur & Thornton, 2015; Hillier, 2015; Mackinnon & Derickson, 2012), and potentially an empty signifier (DeVerteuil & Golubchikov, 2016). In totality, resilience thinking continues to remain dominant in many climate governance policies and plans, though its normative judgments and calls for modernist fits within systems.

1.5.2. Environmental Governance theories

In the absence of specific climate governance theories in the literature, most theories on climate issues are linked with broader environmental governance theories that use many of the theories and their associated concepts discussed in the previous section. Other scholars have conducted detailed literature reviews and analyses of environmental governance and natural resources governance theories (Cox et al., 2016; Partelow et al 2020). In this section, based on existing literature, I will briefly synthesize five theories that are applicable in the context of climate studies vi. Multi-level governance, polycentric governance, network governance, adaptive governance, and evolutionary governance theories.

Multi-level governance (MLG) theory broadly focuses on different components of governance such as actors, interactions, and scales of institutions applicable to a particular area or context. MLG approaches to examine the relationships between a range of territorial levels i.e. international, national, regional, and local level policies. These are mostly in use in the international climate discourse which involves transnational decision-making and legal issues related to climate (Fraundorfer, 2017; Sattler et al., 2016). MLG assumes that vertical and horizontal integration of policies is most effective for climate action at all levels, and the lack of synergies between actors and institutions can be useful starting points of inquiry.

While MLG relies on a certain hierarchical governance structure (top-down or bottom-up), *polycentric governance* and *network governance* challenge this view since it skews the organization system to be too centralized (Duit & Galaz, 2008; Ostrom, 1972, 2010). Polycentricity revolves around decentralization and hypothesizes that having multiple centers of decision-making within a governance framework is more effective compared to a top-down centralized approach. Network governance, on similar lines, is focused on interdependencies between different actors, hypothesizing that the nature of interactions between actors will determine the outcome of the governance process. Both polycentric and

network governance are useful when particular actors and institutions fail during a systemic disruption (others can coordinate a response), thus improving system adaptability as a whole.

With the dominance of SES and CAS theories, *adaptive governance* became popularized in planning practice in cities and remains so to date (Chaffin, Gosnell, & Cosens, 2014; Gunderson & Holling, 2002). The central hypothesis is that a more adaptive SES is more likely to be resilient and sustainable. A normative theory with resilience and sustainability as an end goal, this theory advocates for adaptation through continuous learning across communities and cities in the local and global governance context. Adaptation is in the front seat, and observations have to be made locally. An evolving literature post-2010s has developed on climate governance using this theory explicitly or implicitly, focusing on local resource management (Heinrichs, Krellenberg, & Fragkias, 2013; Lervik & Sutherland, 2017; Sapiains, Ibarra, & Ryan, 2020).

More recently in the last ten years, combinatory theories have emerged in the context of environmental governance, such as the *Evolutionary Governance Theory* or EGT which hypothesizes governance as a process of constant evolution, specifically encompasses co-evolutions between different elements of a governance system i.e. configurations of actors/institutions, power/knowledge, and discourses (Assche, Beunen, & Duineveld, 2017; Beunen et al., 2015; Van Assche, Beunen, & Duineveld, 2013). EGT argues for continuous observation, strategizing, and coordination to identify limited options available at a particular time for achieving governance goals. Governance here refers to a form of coordination among actors and institutions in taking collectively binding decisions within a community and place. I make a clear distinction between the terms ‘government’ and ‘governance’, which means that governance is never the domain of just the formal governments, but a combination of decisions by formal and informal actors and institutions. There is no perfect procedure or design for governance since it is heavily dependent on the time and context where it is observed. The co-evolution of elements of governance is always contingent in the EGT lens, and each governance context can be understood through its previous historical state. EGT provides an evolutionary perspective to governance studies by focusing on change and temporal dimensions. Governance structures are thus never stable, and radical, irreversible changes (similar to tipping points in social-ecological systems) are based on contingency and in a particular context, can be observed partially and only be understood post-facto. EGT combines various perspectives from other theories, mainly institutional

economics, social systems theory by Luhmann (ideas of embedded functional systems, organizations and interactions, and couplings); Foucauldian ideas of discourses and objects (and subjects), evolutionary biology including GST and polycentricity (no center and no hierarchy in governance).

In the EGT framework, actors (individuals, organizations, groups) and institutions (rules of coordination such as policies, plans, and laws) are always co-evolving, thus creating new governance configurations and affecting other elements of governance. Power relations are similarly always evolving, and can be understood only by understanding their coevolution with forms of knowledge (in this case and context, expert, local and traditional knowledge). In the context of climate governance, governance systems are always adapting to create a right fit with the environment, and hence always changing internally as well as their relation with the environment. Multiple governance architecture is thus possible with time including multilevel, polycentric, networks, with each having its limitations, blind spots, and patterns of exclusion and inclusion of actors, institutions, and discourses.

In the EGT lens, SES are limited in their ability to adapt, due to the inability to grasp the realities of all environmental risks (emanating due to uncertainties), and thus adaptation is always partial, and a particular governance configuration can come up with limited possibilities for actions. EGT is not normative and is useful in making sense of the limitations of different policy approaches, governance contexts, and dependencies involved in the difficulties of creating new radical paths. The range of available options is always context-dependent and will depend upon past governance contexts.

In this study, I use the EGT lens as the base in all the empirical articles (explicitly or implicitly), although traces of concepts from SES theories and other governance theories are there throughout. The elements of governance framework i.e. actor/institutional configurations and discourses in terms of their co-evolutions are discussed in detail through empirical inquiries. The third element i.e. power/knowledge configuration is not an explicit part of the frameworks that are employed, thus remain in the background for these studies and is open for future inquiry. For example, Chapter 3 engages with the discursive aspects of EGT, examining the temporal dynamics of the discursive construction of risk and vulnerabilities in climate plans/policies in Bhubaneswar. Chapter 4 turns to the formal and informal actor/institutional configurations and their co-evolving interactions within changing

risk and governance contexts. On the other hand, in Chapter 5, I begin with the SES concepts of shocks (systemic disruptions) and examine their combined effects on climate risk governance, forms of knowledge, and the adaptive capacity of Bhubaneswar (the SES). EGT here remains in the background, while SES theories and resilience are foregrounded. I am drawn toward EGT because it helps understand fast-paced changes in the decisions around climate change in Bhubaneswar city in the past two decades, as well as to study how particular radical changes in climate discourses and actions affect the actor/institutional configurations, the role of formal and informal power and networks, patterns of inclusion and exclusion seen within informal settlements, and draw implications for adaptive capacity of the city as SES. EGT is flexible in its approach, allows interpretation of reality, and encompasses general and social systems theory, discourse theory, and institutionalist theories which are a good fit with the thinking in this dissertation.

1.6. Key concepts

In this section, I will briefly summarize the main concepts that will be revisited throughout the various articles. Here I will focus on providing a broad understanding of the concepts based on literature, and use these as starting points to contextualize them to the particular context and cases within each article in the dissertation. While I may provide precise definitions of various concepts, I am not necessarily drawn toward seemingly false certainties that specific definitions may indicate, and am instead focused on developing a broad understanding of these concepts to reinterpret them into the case and context of this dissertation where possible.

Governance

In the EGT lens, governance refers to the process of “taking of collectively binding decisions in a community by a diversity of actors, inside and outside government, with formal roles and without formal roles. Governance relies on formal and informal institutions, on formal and informal roles.” (Beunen et al, 2015, p 340). In planning, these decisions are often around the spatial organization of cities through continual interactions and processes involving multiple actors, rules, and regulations. Governance processes are often based on particular models of coordination between elements (for example, the property rights-based model, or socialist

model); and always evolving into new directions called governance paths. These changes have a high degree of contingency, and thus cannot always be predicted.

Discourse and Dispositive

Discourse is broadly an institutionalized way of communicating through a structured set of ideas and concepts, that enables us to make sense of reality (Link, 1983; Beunen et al 2015; Aragón-Durand, 2011; Kumar & Pallathucheril, 2004). Any discourse is partial, and always has other elements of reality that it fails to capture, irrespective of the intent of the communicator. Within the EGT framework, discourses are always unstable, transforming through social practices. Discourses are always evolving and forming new discourses, sometimes they can travel across disciplines and social sub-systems (legal discourses can be get coupled with planning discourses to advance property rights). In doing so, the resulting new discursive configurations can reinforce certain ideas and resist others.

In this study, discourses are used as a method of analysis rather than in theory building alone. Within the field of planning, previous studies by Kumar & Pallathucheril (2004) and Aragón-Durand, (2011) have focused on the method of analyzing planning discourses through a structured analysis of the arguments and texts in plans and action. In this study, I go beyond the assertion by these studies to focus on the linguistic aspects of speech and text in the planning process, but rather turn my focus on a broader understanding of discourse as a combination of text and related material effects. I turn to the broad umbrella of Critical Discourse Analysis which is focused on understanding and analyzing discourses within their social contexts (van Dijk, 2009; Fairclough, 1992; Jäger & Maier, 2009; Leeuwen, 2009). CDA is primarily interested in analyzing not the linguistic unit of the text per se but the social phenomena and context in which the statements are made. The common interest between various approaches within Critical Discourse Analysis is to “de-mystify ideologies and power” (Wodak & Meyer, 2009), by understanding language in a socio-political context” (Groothuis, 2016). So, Critical Discourse Analysis sees discourses as forms of social practice, that shape (and are shaped by) and produce, reproduce as well as resist power relations. By understanding how people, institutions, and groups are represented and positioned in discourse, one can understand these social practices based on power relations. Various approaches to conducting Critical Discourse Analysis have been briefly dealt with earlier in this article.

Based on the above ideas of discourse, (Jäger & Maier, (2009) propose a new understanding of ‘dispositive’, defining it as “the interplay between discursive practices, non-discursive practices, and materializations”. I refer to critical ‘dispositive’ analysis as CDA in this dissertation. This is based on the idea that as human beings we assign meanings to realities. But the material realities exist outside of the discourses that provide meaning to them (a flood event that occurs irrespective of various discourses around it). The dispositive is thus an ensemble of discourses (language and thoughts), non-discursive practices (action having a motive and goal), and materializations (objects created through non-discursive actions). I review the CDA framework and its associated concepts by Jäger & Maier (2009) in Chapter 3 as well as a more extensive summary in Appendix A.

Risk and Vulnerability

While *risk* has been conceptualized in literature in a variety of ways, it is often understood through a hazard lens as the prospect of occurrence of a hazard, natural and manmade. It is represented as a product of hazard and vulnerability and has wide application in most disaster and climate studies (Joshi, 2019; Singh, 2014; Wisner et al. 2004). In this report, I employ a constructivist approach, following Luhmann (1993), who characterized risk as the “internal attribution of possible harm (danger)”. The danger, in this case, is externally attributed, i.e. potential disruptions that emanate from the environment but have impacts on the system. Risk, in this lens, is a construction of the observer, and the internal attribution is done through the decision-making events by actors and institutions, in the present context. Within a social system, multiple risks can be seen from this lens, since decisions made in the form of communication, and anticipating dangers from climate impacts from one system can be seen as a danger to other systems. Following Luhmann and EGT, these decisions are always a selection from a wide array of possible decisions, and that selection is often dependent on the effects of power or code-guided communication. New legislation on greenhouse gas (GHG) emissions, for example, can have negative impacts on the economic system. Adapting this further to social-ecological systems, one can say that risks observed within social systems and the decisions taken by multiple embedded systems (political, social, and economic) can be seen as external dangers in the ecological system. The reverse is also possible since it is now increasingly accepted within SES that shocks emanating from climate change are not natural events, they are a product of internal decisions within the social systems. For example, local

cyclonic storms may appear as natural external events but can be linked to rising land and sea surface temperature which is a direct result of anthropogenic activities. In the context of planning and governance, risk can refer to possible future events (shocks) that can disrupt city governance and landscape. These shocks are not based on the decision-making within cities but on decisions on others (say global warming which is a global decision-making problem and an external threat to particular local contexts). Further, risks within a governance system can come from external dangers (like shock events) as well as the decisions made by actors and institutions on sub-systems. *Shocks* here refer to specific events that disrupt the city when a coordinated governance response is not possible. These events can have origins from inside or outside a system (such as violence, political coups, or cyclonic storms), although, in this study, I am focusing on shocks that can be linked with changing climate (see Chapter 5).

While risk is outward looking, *vulnerability* on the other hand is focused on the social system (or SES) alone, referring to the characteristics of a system that is threatened by risk. It is observed when a system has limited capacity to perform its functions, or when there is a communication breakdown between various systems, affecting operations (Zehetmair, 2012). In the context of governance and planning, vulnerability refers to a priori conditions within cities and communities due to political or socio-economic factors, weaknesses in governance structures, and the lack of institutional capacity to assess, perceive and manage risks (Adger & Kelly, 1999). I discuss risk and vulnerability and contextualize them in Bhubaneswar in Chapter 3.

1.7. Methodological considerations

1.7.1. Research philosophy and overarching approach

This dissertation work is positioned within a social constructivist paradigm, meaning that realities are socially constructed through subjective meanings and perceptions of individuals (Creswell, 2013). Reality is also interpreted through a composite of multiple perspectives, including the researcher's perspective. In the context of climate change, this perspective allows us to see it as a social process that has emerged in society, with various aspects framed and obscured in different contexts (Pettenger, 2007). These perspectives help us answer how and why certain individuals, institutions, and systems frame climate change issues, problems, and goals in a certain manner. The early research on changing climate was carried out through a positivist lens within the natural sciences, which focused on the material risks

alone, ignoring the political nature of climate change issues that are necessary for any meaningful societal response. In this study, I also employ an evolutionist lens to understand temporal aspects of reality, the assumption here is that society is inherently unstable, and our knowledge of climate is always changing, and evolving with time.

I use a qualitative lens for all the articles in this study. Qualitative inquiry attempts to understand things in their natural setting, relying on the interpretation of “phenomena in terms of the meanings that people bring to them” (Denzin & Lincoln, 2005, p.4.). I am mindful of the observations of Alvesson & Gabriel (2013, p. 250), who say: “Qualitative [methodologies] tend to give the impression of clear design, rational and linear procedures, separation of theory and data, and a logical step-by-step process from research question to delivery of result. They generally out-finesse the actual research process, which usually involves ambiguity, messiness, theory-impregnated data, and leaps of intuition with a post-facto invention of rational methodology”.

In line with this thinking, I adopt a flexible and rather fluidic approach to the study, remaining adaptive in each step of the research (topic, design, method, and analysis) to the changes to the context, and remaining open to learning (and changing) as I was conducting the research itself (Assche, Beunen, Duineveld, & Gruezmacher, 2021; Maxwell, 2013; Moon & Blackman, 2014).

1.7.2. Method and techniques

I employed the case study method as the research strategy for this investigation. The case study approach fits naturally in planning research; since allows flexibility to use different methods of data collection as well as in-depth analysis (Flyvbjerg, 2006; Yin, 2009). In general, a case study is defined as “an intensive study of an individual unit of interest” (Stake, 1995). This approach is appropriate for answering ‘how’ and ‘why’ questions about a phenomenon, and is employed in situations where “the researcher has little or no control over the phenomenon of interest” (Yin, 2012). The ‘unit’ here is at the discretion of the researcher (Stewart, 2014) and hence is varied across all the articles. In the context of urban planning research, the ‘city’ is generally considered as the unit of analysis (Campbell, 2003). Within each article, however, the unit of analysis is different. For example, in Chapter 2, I examine risk discourses, wherein the discourse fragment is the unit of discourse (Jäger & Maier,

2009). In chapter 3, the unit of analysis is the narratives in interviews that describe strategies by actors/institutions configurations within the urban governance system in Bhubaneswar.

This is followed by Chapter 4, where the cases are two slum development projects in Bhubaneswar, and the social groups and their constructed narratives of conflict (specifically state and non-state actors and organizations) were the units of analysis.

The case study approach is often criticized for its limitations related to issues of generalizability and researcher bias. However, my position is in agreement with scholars such as Flyvbjerg (2006) and Ruddin (2006) who have refuted these claims previously, demonstrating that the case study approach focuses on depth rather than on breadth; and generalization is possible at the level of theoretical constructs, rather than from the sample to the population. Nevertheless, through this study, I did not intend to generalize from the case but was focused more on situated and contextual knowledge in the case⁹.

The techniques of data collection, similarly vary across all four articles, ranging from desk-based review (Chapter 2), semi-structured interviews, document analysis, direct observation, and field notes for data collection. I conducted the fieldwork between May 2020 and January 2022, through online and in-person meetings and visits. Owing to the restrictions around the ongoing Covid-19 pandemic, I had to adapt the fieldwork by relying on short-duration stays in Bhubaneswar (instead of long-term engagement with many of the participants as initially planned). Several interviews were conducted online and in person based on the restrictions as well as the preferences of the participants. In total, I reached out to 105 potential participants, and finally conducted 35 semi-structured interviews upon recruitment through purposive sampling and snowballing— 9 state actors (state department secretaries, government-appointed scientists, municipal planners, and engineers), 15 non-state actors (activists, slum committee members and residents), and 11 academic and non-academic professionals (climate consultants and academic experts).

All interviews were conducted by me after obtaining prior approval from the University of Alberta Research Ethics Board, as well as informed consent and maintenance of confidentiality and privacy of the participants. The participants did not benefit materially

⁹ See similar studies within the discipline of planning where scholars have employed a case study approach (Flyvbjerg, 1998; Innis & Van Assche, 2022; Jacobs, 1961; Whyte, 1943).

from the engagement in this study. I spent the first few visits (or phone conversations) to the state organizations as well as the communities to build rapport with the participants, through informal discussions around the topic; and gradually conducted the interviews in the following engagements. My position within the community acted both as a barrier as well as an enabler, and also shifted throughout the study. Having spent nearly seven years in Bhubaneswar previously as a student and a professional, I considered myself an insider when I entered the field. Yet, I noticed that several participants interpreted me as a privileged professional from a ‘foreign university’, hence an outsider. In other cases, many senior state actors were more open to sharing information with me as they perceived me as non-threatening (see similar observations by Bahadur 2014). In this sense, these insider-outsider positions kept changing throughout the fieldwork depending on the case and context.

1.8. Dissertation structure

As described earlier, this dissertation follows an article format, composed of four manuscripts intended for publication (Chapters 2 to 5), bounded by an introduction chapter (Chapter 1) and a conclusion (Chapter 6). All four articles have been submitted for publication in peer-reviewed journals. Out of the four, three articles have been published already, while one is in the review process. While I am the lead author for all the papers, all papers involve one or more co-authors. Consequently, all articles are written using the pronoun ‘we’ rather than ‘I’. The first article (Chapter 2) is an extension of the southern question that was briefly described earlier, and as such does not provide a direct reference to the case study. The remaining three articles (Chapters 3 to 5) aim to build on the first chapter and ask specific contextualized questions in the case of Bhubaneswar using an evolutionary governance lens. Given the format of the thesis, there may be repetition across different papers, especially the sections where particular aspects of the case study are introduced, although I have attempted to provide a different perspective in each of the papers.

In the introductory chapter, I have laid out the general theoretical frame of the dissertation, contextualizing it within the existing knowledge on climate and the urban. I have put forth the underlying assumptions, theories considered, and methodological considerations in this chapter. The case of Bhubaneswar is also introduced here, including some perspectives on its historical and contemporary planning context. In Chapter 2, through desk-based research, I

engage with the existing theoretical and conceptual landscape of southern urbanism, to develop a simplified conceptual toolbox as well as identify characteristics of southern cities, which were explored further in other chapters. While the title mentions a literature review, the article evolves into an interpretive critique of existing knowledge on southern urbanism towards the end.

Chapter 3 is a deeper dive into the case of Bhubaneswar, with the aim being to understand how various risk discourses within climate plans and policies have evolved, what conceptualization of vulnerability they portray, and how these mutually relate to each other in this evolution. In Chapter 4, I explore an alternate lens of informality through an evolutionary governance lens, by contextualizing formal/informal institutional relationships in Bhubaneswar, and understanding the effects of their mutual interactions on different elements of governance as well as on adaptation and vulnerability. Following this, in Chapter 5, I focus on the complex entanglements of local urban conflicts and external climate shocks and provide an evolutionary perspective on vulnerability and adaptive governance within informal settlements. Finally, in the concluding chapter, I revisit the overarching aims of the dissertation, clarify the contributions of the study in urban theory and practice, and identify potential areas for future scholarly works.

Scholarly research as well as policy on climate governance that use social-ecological and resilience perspectives have gaps in terms of their inability to address southern sensibilities and contextual factors in the frameworks, especially having blind spots towards informality, self-organization, eviction dynamics, and conflicts that are closer to the everyday realities in fast, urbanizing cities like Bhubaneswar. Through the articles in this dissertation, I have addressed several of these gaps by exploring these factors through an analytic and evolutionist lens, to make sense of various elements of governance in the context of constructed risks and vulnerabilities. In doing so, I have highlighted the risks of ignoring the southern sensibilities in climate governance and planning. Also, the empirical studies help broaden the general understanding of the evolving nature of the central concepts of risk and vulnerability within climate plans and policies; the dynamic nature of mutual co-evolutions between the formal and informal systems; as well as the combined effects of shock events and evolving local conflicts. Together, the body of work presented here adds theoretical critique on SES theory and resilience (particularly in southern cities), as well as empirical

insights into the development of the recent, but emerging EGT perspectives within planning theory in southern cities. The overall findings highlight how risk and vulnerability are socially constructed through discourses, and decisions selected for risk governance and management observed within a constantly evolving governance configuration that enables and limits the systemic ability to respond to climate change risks through collective adaptation strategies.

Chapter 2: Southern Urbanism: A Systematic Review of Concepts, Debates, and Future Directions

Abstract

A significant part of urban theory now engages with southern cities. In this paper, we synthesize the various theoretical propositions and influential concepts that have shaped the rapidly emerging field of southern urbanism in urban studies. We conduct a systematic review of the literature that engages with the idea of southern urbanism. We trace the origins and theoretical landscape of southern urbanism, from being characterized as the global South to being deployed as a theoretical strategy to critique all urban theory. We synthesize the most influential concepts that have attempted to describe observed phenomena in the southern urban space. We identify seven characteristics that dominate the everyday realities of southern cities, making them distinct from their northern counterparts. In addition, we identify existing gaps in the literature and discuss their implications for research in planning. In the discussion, we attempt to create a simplified conceptual toolbox that can be useful for future studies in southern cities' contexts. We conclude the paper by providing a framework using five characteristics of southern cities as potential starting points in future inquiries in urban planning.

Keywords: Southern urbanism, urban, southern cities, global South, systematic review, urban theory

2.1. Introduction

Scholarly interest in southern urbanism¹⁰ has grown over the last few decades and is gaining rapid attention since the turn of the century. Southern urbanism scholarship can be traced back to the 1970s, with the emergence of the 'global South' as a distinct identity for describing countries in geopolitical circles. The idea of southern urbanism, however, remains somewhat ambiguous within the field of urban studies¹¹, especially related to the dilemma over describing southern cities as all cities in the global South or to understanding southern-

¹⁰ In this study, we employ a broad understanding of the term 'southern urbanism', described as everyday realities of cities in the global South (cities in large parts of Asia, Africa and Latin America). We acknowledge the limitations of using binary categories, yet we build on Roy (2015) and Lawhon (2020) that both the South and North have analytical value in research, however imperfectly.

¹¹ Urban studies broadly refer to multiple disciplines that engage in study of cities and towns, including Sociology, Urban Planning, Geography, Anthropology, Political Science and Economics.

ness as a theoretical category and an idea that potentially can unsettle existing theory (Lawhon & Truelove, 2020). Southern theories are based on the fundamental assertion that conventional urban theories are based on limited cases from the cities in the global North and fail to explain phenomena in other parts of the world, especially in cities in the global South (Lawhon & Truelove; Ghertner, 2015).

Since the past decades, the emphasis has been on the debate over the usefulness of the southern theory and the idea of ‘South’ in general as a spatial entity, analytical concept, metaphor, or empirical endpoint (Lawhon, 2020). Scholars across various disciplines have previously argued for southern theory to exist as a critic of their northern counterparts, explored possibilities for epistemological approaches to understanding the southern urban space, and attempted to bridge the gap between southern theory and practice (Bhan, 2019; Maringanti, 2020). Within urban planning, recent works such as *The Routledge Handbook on Cities of the South* (Parnell & Oldfield, 2014), *Urban Planning in the Global South* (Satgé & Watson, 2018), and *The Routledge Companion to Planning in the Global South* (Bhan, Srinivas, & Watson, 2019) are significant advancements of southern theory. Yet, very few works in urban studies have attempted to review the existing body of knowledge on southern urbanism (except for Lawhon & Truelove, 2020; Schindler, 2017b). Previous reviews have highlighted the limitations of the use of northern theories in southern contexts, debated over what geographical contexts new southern theories should emerge from, or on the various disciplinary differences that lead to the use of urban theory differently in the northern and southern cities contexts (Sanders, 1992; Myers, 1994; Robinson, 2006). However, most of the literature either fails to capture what specific aspects of southern cities make them different from the northern cities which leads to these limitations on theory and method (although these references are made implicitly throughout the literature). Specifically, a synthesized understanding of southern urbanism literature showing its linkages with theoretical understandings of southern cities and cross-disciplinary mapping of the relevant conceptual landscape remains a gap in the evolution of southern urbanism scholarship. We use the words by Oldfield, (2014) as a starting point for this article:

“for urban scholars in general the notion of the global south is fluid and increasingly contested, both geographically and conceptually. Reticence over being specific about what places are in or out of the southern delineation should not detract, however, from the widespread concern to (re)view the *global urban condition with a southern sensibility*. There

is little consensus on how exactly to move a (southern) urban agenda forward, representing in our view a healthy diversity of views within the field.”

In this paper, we attempt to make advances in the above gap by conducting a systematic review of literature on southern urbanism in the past five decades. We conduct the inquiry with four main objectives: a) to identify and synthesize scholarly literature on southern urbanism; b) to trace the theoretical evolution of the idea across disciplines, c) to understand the limitations of various approaches, and d) to understand the implications for planning theory and practice. In doing so, we aim to create a deeper understanding of the idea of southern urbanism, while creating a theoretical toolbox that may guide future research work in the field of planning and governance.

In general, through our inquiry, we present how the idea of southern urbanism entails a rich body of work that has evolved temporally and across disciplines. From an evolutionary perspective, the South has been theorized as an exception within existing urban theories (Connell, 2014; Watson, 2009a), contributing to existing theories on the cities through regional (territorial and relational) and comparative inquiries (Brenner & Schmid, 2015; Dear, 2005; Patel, 2014; Robinson, 2006, 2014, 2015; Roy & Alsayyad, 2004; Roy, Wright, Al-Bulushi, & Bledsoe, 2020), toward recent calls for acknowledgment of the South as an epistemological problem (Roy, 2005, 2012), and a distinctive paradigm of urban knowledge (Schindler, 2017b). These calls have unsettled existing urban theory and inspired new ways of understanding cases that are not easily explained using northern lenses. Based on our review, we have mapped seven characteristics that dominate southern cities in general (building upon earlier work by Schindler, 2017). In addition, we have attempted to create a heuristic conceptualization of the broad theoretical and conceptual landscape of southern urbanism research, which can be useful in creating new directions and possibilities for combinatory theoretical frameworks involving multiple disciplines.

In the rest of the article, we elaborate on our analysis and main arguments. We begin with a brief on the material and methods used for this study, followed by our analysis of theoretical propositions, a synthesis of various concepts on southern urbanism, and characteristics of southern urbanism. We follow this with a discussion on a theoretical toolbox, and some useful directions for future research work in the field of southern urbanism.

2.2. Material and methods

We conducted a systematic literature review of the idea to get a comprehensive view of the same (Grant & Booth, 2009; Munn et al., 2018). We follow a qualitative approach, using a systematic review to interpret and help broaden the understanding of the idea of southern urbanism. We followed a three-step process to identify and arrive at the final list of literature samples. First, we used Elsevier's Scopus and Thompson Reuters' Web of Science databases to identify the literature on southern urbanism from 1980 (when the North-South debate gained significant traction) till 2021¹². We used two search terms, 'southern urbanism' and 'southern cities', often used interchangeably by scholars interested in the southern urban question¹³. We used an exclusion criterion here by selecting only peer-reviewed journal articles and editorials from reputed publishing venues¹⁴. The search exercise yielded 260 scholarly works from a variety of disciplines (urban planning, geography, sociology, political science, development studies, and economics) and publication venues (see Figure 2).

Second, we scanned the abstracts of all 260 scholarly pieces of works (including books, book chapters, and peer-reviewed journal articles) to determine if they are conceptually grounded and attempted to theorize southern cities. Here, we used a second exclusion criterion, by excluding articles that did not attempt to describe southern urbanism by providing theoretical, empirical, or methodological insights. This exercise resulted in the selected list of 32 scholarly articles. Third, we conducted a snowballing exercise using the dataset selected in the earlier step, using the articles cited by them, to add to the list of relevant articles (Grant & Booth, 2009).

At the end of this exercise, we arrived at the final list of 69 articles. The final list of articles (journal articles and books) was then reviewed in detail to draw connections between their arguments to synthesize the idea of southern urbanism, map its various characteristics and critiques, and reflect on implications for future research and practice in urban planning. Although relatively comprehensive, the study focused entirely on English language

¹² For similar studies within the field of planning, see Meerow, Newell, & Stults, (2016) and Kotharkar, Ramesh, & Bagade, (2018)

¹³ We considered adding other keywords such as 'third world', 'global South' and 'developing world', but ultimately did not add them since most of the results from those queries focused on categorization of countries rather than conceptualize the urban (see Sanyal 1990; Qadeer 1990).

¹⁴ Publishing venues include books, edited book chapters, and articles from journals such as *Urban Studies*, *International Journal of Urban & Regional Research*, *Planning Theory*, *Urban Geography*, *Cities*, *City and Society* and similar high ranked journals relevant to the field of urban studies, and indexed within Scopus and Web of Science

publications in two major databases, and likely missed out on other language articles that were published in other avenues and languages (such as Chinese, Portuguese and Spanish), thus a language bias. Also, we acknowledge that new ideas and articles may have emerged since we conducted this analysis, due to the rapid development of literature on southern urbanism.

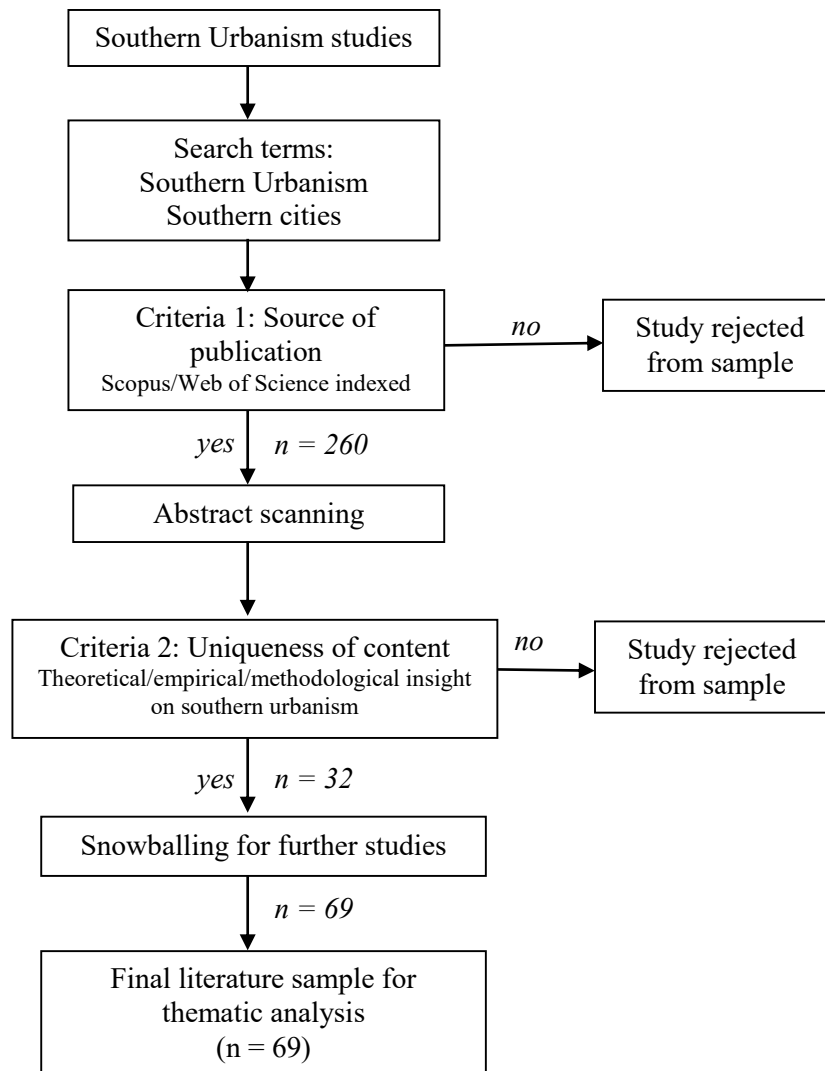


Figure 2 Methodology adopted for selection of articles for the study

2.3. Southern urbanism: Influential thinkers and concepts

Origins and theoretical advancements

There has been a growing interest among scholars across disciplines concerning southern cities, and the various theories and methods used to study and understand them. Various approaches and nomenclatures have been used by scholars, such as Third World cities, the

developing world, and Global South. It is useful to note here that most of these terminologies arose from debates over categorizing countries rather than specific cities. Within these, the ‘South’ has undergone substantial theorizing and critique within planning and is hence most relevant for this article.

Since the 1990s, the idea of the ‘Global South’ picked up and spread across various disciplines in social sciences, describing the perspective of the developing countries (usually the former colonies) and as a proxy to articulate colonizer-colonized differences and continuities (Connell, 2007, 2014; Dados & Connell, 2012; Myers, 1994; Slater, 1992; UNDP, 2018). An overwhelming majority of the debate focused on the South as a geopolitical concept, attempting to categorize countries into the North-South debate. Since the turn of this century, a shift has occurred toward making urban theory from cases from the South, giving rise to a burgeoning literature on southern urbanism within the fields of geography and planning (Lawhon et al., 2020; Robinson, 2002, 2004, 2005, 2006).

In Table 3 below, we highlight various studies identified from the literature sample, that attempt to describe the idea of southern urbanism and southern cities over the last two decades predominantly, which is more relevant to planning and governance theory and practice. In general, these studies theorize aspects of the South and ask

Table 3: Recent studies that have shaped the literature on Southern Urbanism

Predominant research focus	Study	Theoretical/ Empirical	Key ideas/arguments	Core Concepts	Discipline/ Subject area
Southern theories as a means to critique northern theory	(Mcgee, 1991; Slater, 1992)	Theoretical	South is empirically different, northern lenses should not be imposed in southern cities	North-South relationship	Urban Geography
	(Myers, 1994; Sanders, 1992)	Theoretical	Northern theories have recognizable limitations when used in southern cities. Southern locations should be sites from where new theories emerge.	North-South relationship	Urban Geography Anthropology
	Roy, (2005)	Theoretical	Eurocentrism' is an epistemological problem. The 'South' can be better understood relationally, through acknowledgment of historical differences	South	Planning
	Watson, (2009b)	Theoretical	Conventional Planning theory continues to be 'north' centric. 'Southern' focus is needed to challenge underlying assumptions in existing planning theories.	Global South; Conflicting Rationality	Planning
	Parnell & Oldfield, (2014)	Theoretical	Southern cities can be better understood by studying the fiscal challenges, governance failures, urban needs, complexity, and everyday struggles within cities.	South	Planning
	Connell, (2014)	Theoretical	Southern theory can be used to challenge existing global urban theory.	Southern theory	Planning
	Patel, (2014)	Theoretical	Dispensing northern theories is a flawed approach. Context-based theories can emerge from scholarly engagements between southern scholars.	South	Sociology

	Ghertner, (2015)	Theoretical	South is empirically different. Northern theories do not hold well in many parts of southern cities.	North-South relationship; Gentrification	Urban Geography
Critical + Normative positions on understanding southern cities, and building southern theory	Oldfield, (2014)	Theoretical	South-South connections can help advance new geographies of urban theory.	South	Urban Geography
	Pieterse, (2015)	Theoretical	Southern urbanism theories need to position themselves beyond the subaltern towards more nuanced positions in the southern city.	Southern Urbanism	Planning, Public Policy
	Robinson, (2002, 2004, 2006, 2014, 2015)	Theoretical + Empirical	Comparative urbanism, both methodologically as well as analytically, can help diversify urban theory.	Comparative urbanism	Urban Geography
	Schindler, (2017b)	Theoretical	Southern cities are empirically different from northern cities, new modes of understanding should emerge to focus on categorical differences	Southern Urbanism	Sociology
	Bhan, (2019)	Theoretical	Southern theory is presently unrooted in urban practice in southern cities. Three modes of practice are seen in the South – squatting as an urban practice; repair rather than upgrade, and consolidation of the existing sociotechnical systems in cities.	Southern practice	Planning
	Maringanti, (2020)	Theoretical	Southern practice is field-driven. New theories in the South can emerge from concept building and re-engagement with practice.	Southern Urbanism	Urban Geography
Rejection of Northern/Southern isolationism in theory	Lawhon & Truelove, (2020)	Theoretical	Empirical differences between southern and northern must be studied along with a critique of existing knowledge production and processes.	South, Southern urban critique	Urban Geography
	Lawhon & Le Roux, (2019)	Empirical + Theoretical	North-South binary imaginaries are an imperfect articulation of the urban, reify differences.	North-South	Urban Geography
	Lawhon et al., (2020)	Theoretical	‘South’ is a term as well as a political alliance. Scholarly engagement is key for addressing knowledge politics as well as developing urban theory for a world of cities.	South, Southern urbanism	Urban Geography
	Truelove, (2021)	Theoretical	Southern cities can be understood through frameworks that study everyday urban governance beyond the state.	South; Global urbanism	Urban Geography

ontological and epistemological questions on southern theory and practice, possibilities of North-South relationships in theory as well as South-South collaborations. We categorize the studies in terms of the dominant focus in particular moments of the evolution of southern urbanism literature, based on the predominant positions of scholars. We recognize here that many of the studies mentioned here may be categorized in more than one category of focus, however, we aimed to place them in one of the themes based on their explicit positions, as well as for better clarity.

First, the formative years of southern urbanism scholarship can be traced to the early debates within the field of Urban Geography that involved voices that critiqued the dominance of the northern-centric (theories that originated from Europe and North America) approach in urban theory (McGee, 1991; Slater, 1992), or recognized the limitations of northern theories in

describing phenomena in southern cities (Sanders, 1992; Myers, 1994). The central argument of scholars largely drew from post-colonial theory, alluding to this line of thought was that scholarly work needs to change the discourse on urban theory that easily ignores the realities in countries in southern cities, or to take cues from Roy, (2015) to go beyond “stories that the West most often tells itself about itself”. Southern cities have long existed as an exception rather than mainstream for most of the planning literature in the past decades, which has since been questioned in the last two decades (Lawhon & Roux, 2019; Oldfield, 2014; Roy, 2005, 2009b; Satgé & Watson, 2018; Watson, 2009b). Other scholars have taken a critical regionalism position by arguing for more relational studies, where the starting point for theorizing is from an explicit acknowledgment of the historical relations between the colonized and colonizers (Connell, 2014; Dear, 2005; Patel, 2014; Roy, 2012, 2015; Roy et al., 2020); or territorial approaches, where the starting point is to see that the South is empirically different than the north and that the theories that originate in northern contexts often do not hold in southern cities context (Asher Ghertner, 2015, 2017; Lawhon & Truelove, 2020; Patel, 2014; Pieterse, 2015; Simone, 2014a, 2014b; Tacoli, 1998; Takayama, Heimans, Amazan, & Maniam, 2016).

The *second* research focus gained prominence in the early 2000s, with the focus shifting to how to study southern cities. This position does not necessarily disagree with the post-colonial positions, which strived to understand southern cities through methodological approaches. Various scholars provided critical and normative positions on how to study the southern urban space. The various approaches include context-driven studies in urban contexts (Oldfield, 2014; Patel, 2014), comparative studies between North-South and South-South contexts, and increased participation and representation of southern scholars as the answer (Ghertner, 2017; Pieterse, 2015; Robinson, 2002, 2004, 2014), and bridging the gap between southern theory and practice by creating new theories, concepts, and vocabularies that explain common aspects of southern practice in southern urban spaces (Bhan, 2019; Maringanti, 2020; Schindler, 2017a,b; Truelove, 2021). The central assumption of these ideas is that southern cities are empirically different from their northern counterparts, and hence warrant new theories, methods, and approaches to study them.

The empirical focus of many scholars studying the South triggered scholarly conversations and debates, and many disagreements. The *third* focus area is related to the re-emergence of the post-colonial critique of the above in response to the critique that southern and northern theories should exist in isolation in urban studies. While this position does not argue against

empirical inquiries, they argue that empirical work in the southern cities context should go beyond the North-South binary and focus on urban theory for a global urban studies wherein all cities contribute towards knowledge production based on scholarly engagement and acknowledgment of the knowledge politics of academia (Lawhon et al., 2020). Scholars contend that the South should be looked beyond location and situated knowledge, toward an idea, a concept-metaphor (Lawhon, 2020; Lawhon & Truelove, 2020). Lawhon & Truelove, (2020), following Roy & Ong, (2011) further argue that the South “can be deployed to signify the specificity of all knowledge-theory by displacing the north as universal and the South as particular/ exceptional”, thus ultimately creating a potential to question the universality of northern theories, and recognizing theories as geographically located, and thus limited and inadequate or incongruent in other geographies. This approach sees the South as a strategy to unsettle existing urban theory dominated by a northern-centric understanding of the urban.

Synthesis of concepts and their evolution

In Table 4, we summarize various concepts and ideas that are of relevance to southern urbanism and southern cities literature. The early provocations in the area of southern cities and their governance mostly came from post-colonial perspectives, with ideas such as conflicting rationality (Watson, 2003, 2006, 2009), and urban informality (Acuto, Dinardi, & Marx, 2019; Alsayyad, 2004; Roy, 2005, 2009b; Shatkin, 2004) making decent advances in understanding how cities are governed through formal and informal networks, often adopted by state and non-state actors, and constantly competing with each other in the urban space. The idea of informality gradually became very influential in planning and continues to be reimagined in both cities in the northern as well as southern context (Acuto et al., 2019). The concept has a strong analytical and normative component and has links with planning as an activism approach.

Influences of seeing planning as activism as well as post-colonial thought can be seen in many other works relevant to this discussion, often focusing on the ‘radical’ remaking of urban space by citizen groups such as pirate towns (Simone, 2006), occupancy urbanism (Benjamin, 2008); insurgent citizenship (Holston, 2009); and subaltern urbanization (Roy, 2011). Other scholars provided similar radical attempts at spatial change by the state, describing such phenomena as radical incrementalism (Pieterse, 2008), aesthetic governmentality (Asher Ghertner, 2013; David Asher Ghertner, 2017), and civic

Table 4: List of concepts relevant to southern urbanism literature

Concept	General description	Notable literature	Links with wider theory/method
Conflicting Rationalities	Describes a situation when the differences between negotiating groups are extremely deep, going beyond 'speech-level misunderstandings' and unwillingness to see the others' point of view	Watson, (2003)	
Urban Informality	A political construct, a way of life, and an organizing urban logic that gets manifested in distinct urban sectors. Informality always operates through constant negotiation of value and mapping/unmapping of space.	Roy & Alsayyad, (2004)	
Political Society	Terrain wherein claims and benefits can be negotiated between administrative state and citizen groups that play an important role in urban politics.	Chatterjee, (2004)	
Pirate towns	Urban landscape becoming dominated by radical attempts by citizen groups to remake the urban space by illegitimate disorientation of systems of circulation of resources and people.	Simone, (2006)	Post-colonialism Planning as activism
Occupancy Urbanism	A form of reversal of urbanism patterns wherein unoccupied urban land is re-occupied by marginal producers (such as small-scale farmers) to conduct agricultural practices without the security of tenure	Benjamin, (2008)	
Insurgent Citizenship	Organized movement of alternate citizenship to confront the different regimes of inequality that are often produced by rapid urbanization.	Holston, (2009)	
Subaltern Urbanism	A form of urbanism in the global South, where the subaltern spaces/groups are active agents of change (through new forms of self-organization and political agency).	Roy, (2011)	
Worldling cities	Process in which situated urban practices creatively shape alternative 'worlds' (social visions and configurations)	Roy & Ong, (2011)	
Rogue Urbanism	Urbanism is characterized by a great degree of unruliness, and uncertainty, full of surprises in the overall socio-cultural dynamics.	Pieterse, (2011)	
Radical Incrementalism	Urbanism balances the desire for radical change in the quest for utopian imaginaries on one hand, and incremental change recognizing the realities of urban life such as complexity and capitalist context.	Pieterse, (2008)	
Civic Governmentality	A 'spatialized regime' that functions through specific rationalities - such as mediating populist movements (such as middle-class activism and liberalization); new technologies of knowledge production; as well as new imaginations of 'civility'.	Roy, (2009a)	
Aesthetic Governmentality	A place-based governmental technique that operates by generating knowledge on urban spaces through aesthetics and narratives about the outer appearance of those spaces (as opposed to conventional forms of epistemological approaches such as surveys and mapping.)	Ghertner, (2010)	
Gray Space	Spaces within cities that fall between 'white' (legal, approved, and safe) and 'black' (illegal, danger from eviction, and unsafe). Gray spaces are simultaneously discursively despised while being tolerated in practice.	Yiftachel, (2011)	Governance theories Institutional planning Planning as design
Speculative Urbanism	A distinct form of urbanism, characterized by corporate firms benefit from constant negotiation and leverage in their dealings with state governments; thus negatively affecting any possibility of long-term place-based urban planning for the residents of the city.	Goldman, (2011); Sood, (2017)	
The multiplicity of Governance regimes	Multiple governance regimes exist within a city. These regimes emerge from negotiations between non-state actors,	Schindler, (2014a)	
Entangled Urbanism	A form of urbanism wherein the daily lives of the slums are entangled within middle-class populist activism - as a response to the urban global imaginary.	Srivastava, (2014)	
Dialectical Urbanism	Everyday urbanism in cities is produced dialectically - through constant co-evolution and contradictions. Dialectical Urbanism can potentially form possibilities for a 'radical politics of repair'.	Mcfarlane & Silver, (2017); Scheba, (2021)	

Telescopic Urbanism	Dominant 'telescopic' ways of looking at cities, such as the 'business consultancy' view or 'human potential' view are both problematic. They only see parts of the urban landscape and hence limiting.	Amin, (2013)	
Near-South	Cities that do not show conventional characteristics of 'southernness' (underdeveloped and catching up to the northern cities); but are very close to these fundamentally.	Simone, (2014b)	
South-East	Theories that originate from 'non-western and 'non-northern' scholarship and geographies - rely on ethnicity (place-based cultural identity).	Yiftachel, (2006)	
Global East	North-South binaries in southern urbanism scholarship are problematic. Many cities in East or South-East Asia do not fall under 'North' or 'South'. They are categorized as Global East.	Shin, (2021)	
Ordinary Cities	All cities are 'ordinary' - and thus unique combinations of social, economic, and political configurations.	Robinson, (2006)	Comparative method Regionalism/Critical regionalism
Transversal logics	Processes in urban space in which state and non-state actors engage with each other within the overall boundaries of wider logic, but through constant negotiation and mutual transformation.	Caldeira, (2017); Gururani & Kennedy, (2021)	
Comparative Urbanism	An epistemological approach to understanding urban processes by comparing and contrasting urban and regional developmental problems between cities worldwide in different contexts and social systems.	Robinson, (2014)	
Peripheral Urbanization	Modes of production of urban space that engage transversally with wider discourses/logic (such as property rights, capitalism, etc.); and produce heterogeneity within as well as between southern cities.	Caldeira, (2017)	

governmentality (Ellis, 2012; Roy, 2009a). Other scholars argue for more analytic perspectives that arise out of *embracing complexity*, such as rogue urbanism (Pieterse, 2011) and gray spaces (Avni & Yiftachel, 2014; Yiftachel, 2006, 2011). Combined, these ideas looked at situated urban practices motivated by a desire to create alternative state narratives, imaginaries, and new forms of spaces (Roy & Ong, 2011; Shatkin, 2013).

More recently, the scholarly focus shifted towards the plurality of spaces within and between southern cities. The core idea here is that southern cities have a highly complex spatial organization where multiple networks, spaces, and discourses exist, often in conflict with each other. Ideas such as telescopic urbanism (Amin, 2013), the multiplicity of governance regimes (Ghertner, 2013; Schindler, 2014), and dialectical urbanism (Mcfarlane & Silver, 2017; Scheba, 2021) allude to this overarching idea, arguing that southern cities should be seen in particular governance contexts that emerge out of constant negotiation among state-non state or even non-state actors themselves.

Similarly, Truelove (2021) argues that multiple 'genres' exist within the South which can be better understood by looking beyond state governance approaches. Differences exist between cities in the South in terms of their everyday urbanisms and negotiations – New Delhi, Jakarta, Sao Paulo, Johannesburg, and Beijing show different characteristics and thus cannot be obscured into a homogenous category of space, but need categories of spaces. Simone

(2010) presented two governance regimes in the Oju-Elegb neighborhood in Lagos existing within the same day (between morning and evening), one transitioning into another.

Schindler's (2014) study of New Delhi in India furthered this idea by presenting the co-existence of multiple governance regimes at the same time, determined by different relationships between non-state actors.

Recent conceptual advancement in the last decade arises from an uncomfortable position of putting the South as a global category of cities rather than an ensemble of ideas. These ideas cater to the positions on regionalism, by referring to the southern cities as bounded spatial units (cities as territories) that can be understood as a separate category. Simone (2014) proposed a new category of 'Near South' to describe cities that are within the general rubrics of southern cities, yet are fast catching up to their northern counterparts (for example, Rio de Janeiro, Shanghai, Jakarta, Kuala Lumpur, Sao Paulo). Shin (2021) similarly, discards the North-South categorization of cities and in its place, proposes new categories such as Global East to describe the cities in South-East Asia which are different from other regions within Asia – cities too rich to be considered South, and too poor to be considered north (for example Chinese cities of Beijing, Shenzhen, Shanghai, and Guangzhou; other global cities such as Singapore, Dubai, Doha and Istanbul) . These provocations have raised questions on 'how to theorize from the South', leading to ideas of peripheral urbanization and transversals as theoretical concepts that have the potential to answer epistemological questions in southern cities that focus on understanding the dynamic urban processes which arise out of constant negotiations between state and non-state actors, institutions and discourses (Caldeira, 2017; Gururani & Kennedy, 2021).

Characteristics of southern cities

In Table 5, we list and summarize seven distinctive characteristics of southern cities, put forth by various scholars across disciplines. First, an overwhelming number of cities in the southern context are in continuous transition from their colonial history. The resulting urban spaces in the past many decades have been characterized by hybrid spaces due to this cultural mix (Swilling & Annecke, 2012) or blurring of rural-urban boundaries (Tacoli, 1998).

However, many of these cities continue to be dominated by elite politics (rising middle class, corporate actors, political actors, and bureaucrats) that continue to dominate decision-making around growth, planning, and governance issues. Planning in many parts of the South has

slowly moved on from modernist design-led spatial solutions (such as Chandigarh, which was aimed to break free from the shackles of colonialism) toward a hybrid system of

Table 5: Characteristics of southern cities (collated from literature sources)

Characteristic	Description	Notable literature	Broader theory/ Concept
Persistence of long expansion and continuous transitions have roots in colonial and are dominated by post-colonial elite politics	Urban spaces are often characterized by a hybrid spatial culture, mostly driven by discourses on social identity traceable to a longstanding legacy of colonialism and elite politics.	(Swilling & Annecke, (2012)	Post-colonialism
Territorial change is a governance priority	Governance regimes are inclined more towards the transformation of land (through infrastructure and real estate development) compared to industrial production.	(Schindler, (2017b)	Planning as Governance; Territoriality
'Informality' is a dominant process as well as the context in which every day urban processes manifest.	Urban processes are evolving within a wider context where both state and non-state actors and institutions practice different forms of informality. At the same time, in the various urban processes, the formal and informal actors/institutions constantly shape each other.	Bhan, (2009); Kundu, (2019); Prieto, (2021); Roy, (2009b); Roy & Alsayyad, (2004); Schindler, (2017a)	Informality
City spaces and resident groups are characterized by high vulnerability	Cities that are characterized by a large part of the population are vulnerable to socio-economic, cultural as well as emerging environmental (and climate) risks.	Bankoff & Hilhorst, (2009); Bhan, (2009); Chu & Michael, (2019); Singh & Basu, (2020)	Vulnerability; Risk; Conflict; Inequality; Marginalization; Socio-spatial segregation; Social Justice
Every day urban processes are driven by uncertainty, surprises, and creative livelihood techniques.	Waves of change can have their origins anywhere - through middle-class activism as well as through subaltern assertiveness on land through legal or 'rogue' means. The livelihood techniques of residents of informal settlements are highly unique and adaptive based on the degree of vulnerability as well as closeness to political circles.	Parnell & Oldfield, (2014); Pieterse, (2011); Simone, (2001, 2004, 2014a); Trovalla & Trovalla, (2015)	Uncertainty; Complexity
Conflicting rationalities persist between and within groups	There is a persistent clash of rationalities between techno-managerial planning and governance systems and marginalized urban populations in the city (predominantly seen in informal settlements).	Ngwenya & Cirolia, (2020); Watson, (2003)	Conflicting Rationality
A disconnect between capital and labour.	Southern cities have been accumulating a huge workforce, yet the formal economy is unable to absorb most of the labour force.	Schindler, (2017b)	Formality/Informality; Political economy

institutionalism (establishment and codification of rules and roles of actors and institutions) and search for efficiency in urban management through New Public Management (neoliberal) initiatives (such as the Smart City Mission in India). The post-colonial elite politics have often created new forms of hegemonic discourses, actively contributing to maintaining old power relations and side-lined social justice initiatives (Roy, 2009b). Second, the state governance priority in the cities is territorial change largely aimed through large infrastructure projects and real estate leap-frogged developments. This is in contrast to the general logic of development in northern cities that relied historically on industrial production

to trigger growth (Schindler, 2017b). Interestingly, non-state actors are also motivated by a strong desire to assert their spatial right to the city space, which contributes to territorial changes not recognized by the state apparatus.

Third, urban processes in most southern cities occur within a dominant context of informality. While one may argue that many northern cities also exhibit informality, the phenomenon is overwhelmingly dominant in southern contexts. Both state and non-state actors and institutions practice different versions of informality, increasing complexity in the urban system (Bhan, 2009; Kundu, 2019; Prieto, 2021; Roy, 2012; Roy & Alsayyad, 2004; Schindler, 2017a). The formal and informal systems are in constant negotiation, always changing each other, often through competing discourses and active or passive conflict (Banks, Lombard, & Mitlin, 2020; Chu, 2015; Chu & Michael, 2019; Meijer & Ernste, 2019; Schindler, 2017a). Residents in informal settlements are in a process of constant balance between the struggle for legitimacy and livelihood opportunities, often resulting in insurgencies and self-organization (Chatterjee, 2004; Holston, 2009; Lopez, 2007; Simone, 2006).

Fourth, a significant population in southern cities experiences a high degree of vulnerability, often arising in the form of livelihood and socio-economic risks, but also including rapidly emerging and unprecedented environmental and climate risks (Ghertner, 2013; Bhan, 2009; Chu & Michael, 2019; Ghertner, 2015; Singh & Basu, 2020; Singh et al., 2021). Most southern cities do not have a significant level of adaptive capacity to deal with the present as well as future risks, putting them at higher risk compared to their northern counterparts. Simone, (2014) describes how southern cities are closer to ecological tipping points compared to northern cities:

“...does not mean that London or New York is immune from multiple crises or social disasters. It simply means that through a combination of all the factors identified above, none of which singly or in various combinations is sufficient to establish a marked difference between cities of the South and North, these cities of the South could be nearer to a wider range of “tipping points” than are their Northern counterparts.”

Fifth, high levels of risk and everyday informal practices contribute to uncertainty in daily urban processes, and unique and creative livelihood and self-organization strategies by the most vulnerable groups (Benjamin, 2008; Pieterse, 2011, 2015; Schindler, 2014b; Simone, 2006; Trovalla & Trovalla, 2015). However, this uncertainty is not limited to the overall state

governance processes, it can be seen in the citizens themselves who are unsure about their future in the city (Simone, 2001, 2014a).

Sixth, governance decisions and change are often messy, characterized by the permanence of conflicting rationalities represented by various actors and institutions in southern cities (Watson, 2009a). These conflicts exist both between (in the planning system, between state and non-state actors), as well as within the groups that negotiate, increasing complexity and undermining planning and governance systems (Ngwenya & Cirolia, 2020). And finally, southern cities are characterized by a disconnect between capital and labour. Schindler, (2017) in his influential article explains how the capital and labour workforce has increased in most southern cities, yet they remain largely disconnected (a significant portion of the labour force is unable to find formal work while their livelihood and means of sustenance is dispossessed). Most economic activities and urban processes thus remain considered as informal, and much of the development happens outside the formal governance systems and frameworks which are unable to employ the majority of the city workforce.

To sum up, most of the aforementioned characteristics put forth some serious challenges and pose questions on the relevance of planning and formal governance systems in southern cities. The active persistence of post-colonial elite politics in the planning and governance of urban spaces, its influence on manifesting a culture of informal urbanization (especially its speed and complexity), and weak governance and institutional structures make it difficult to implement any city planning strategies at scale, thus leaving city planning institutions to attempt to implement grand visions or at most area-based projects that are easier to implement (Watson, 2015). The close coupling between local politics and planning is often seen in the southern cities, context, and history matter here strongly in any scholarly inquiry or otherwise.

2.4. Discussion

A toolbox for southern urbanism research

Various studies reviewed in this study provide diverse lenses and perspectives that attempt to explain the realities in southern cities, depending upon their disciplinary orientation and epistemological approach. While the early part of the development of the idea of the South began within the fields of political science, sociology, and economics, in the past two decades, there has been significant conceptual advancement within the fields of Planning,

Table 6: Simplified heuristic conceptualization of disciplinary origins and evolution of theoretical advancements and influential concepts on southern urbanism since the 1970s.

	DISCIPLINE				Assumptions
	Planning and Development	Geography	Political Science	Sociology	
1970s				World-Systems theory (Wallerstein, 1974, 1976)	<i>South as a geopolitical concept</i>
1980s		The emergence of Global South as a distinct term			
1990s		Peri-urban interface (Tacoli, 1998)		Quiet Encroachment (Bayat, 2000)	<i>South as spatially bounded units / alternate locations/regions</i>
2000s				Political Society (Chatterjee, 2004)	
		Urban Informality (Roy, 2005)			
		South' as a means to critic northern urban theories (Connell, 2014; Watson, 2009a)			
		The 'South' is everywhere, but also somewhere. (Sparke, 2007)			
		Pirate towns (Simone, 2006)	The 'South' is a condition of deprivation of freedom, rights, and opportunities (Lopez, 2007)		
2010s	Gray Spaces (Yiftachel, 2011)				
		Near-South (Simone, 2014b)			
		Ordinary Cities (Robinson, 2006)			
		Civic Governmentality (Roy, 2009a)			
		Aesthetic Governmentality (Ghertner, 2010)			
2010s		Speculative Urbanism (Goldman, 2011)			
		Comparative Urbanism (Robinson, 2014, 2015)			
		Worldling cities (Roy & Ong, 2011)			
		Peripheral Urbanism (Caldeira, 2017)			
		Transversal logics (Caldeira, 2017)			
			Southern Urbanism can be a new paradigm. (Schindler, 2017b)		
	Semiotics of southern urban spaces (Bhan, 2019)				<i>South as an epistemological problem/empirical object</i>
2020s		South is a political alliance, not a location. (Lawhon, 2020)			

Development, and Geography. These differences in disciplinary orientations have led to new questions on a scale of analysis (physical space, temporal evolution, or institutional configurations) and debates on focus on processes vs outcomes of planning and governance in southern cities. However, a weakness remains. Most theoretical propositions seem to be focused on describing what the ‘South’ entails, or specific characteristics that may provide a lens to categorize cities or spaces within them as ‘southern’. However, these approaches may not be effective in creating new theories that answer specific questions based on situated knowledge in southern cities. In the absence of these theories, southern urbanism remains a specific topic of inquiry or at best an emerging field of scholarship. A starting point is to ask a reflective question – how have the existing theoretical propositions and concepts been useful in establishing southern urbanism thinking in general?

In Table 6, we present a simplified heuristic conceptualization of the theoretical landscape of southern urbanism since the 1970s (adapted from Partelow et al., 2020). The table shows various theoretical propositions as well as conceptual development across four major disciplines viz. planning and development studies, geography, political science, and sociology. We recognize that this analysis may not be exhaustive of all the theories and concepts related to southern urbanism¹⁵. Yet, having a diverse theoretical toolbox can be useful for scholars, in providing a guide for understanding early history and diversity of theories, as well as creating possibilities for more interpretation and new combinatory theories that have orientation and flexibility towards multiple disciplines. We argue that fostering a multi-disciplinary approach and building different understandings of southern cities can strengthen this field of scholarship while helping to identify theoretical, conceptual, and methodological tools for scholars.

Key arguments and implications for planning

We put forth two main arguments based on this study. First, most literature continues has focused on building many theoretical propositions and concepts, while the methodological approaches and empirical works to support new theories or to map nuanced perspectives of existing southern theories have remained a weakness. In this regard, Schindler (2017) remarked that “unfortunately the creativity that has been applied to theorizing Southern cities has not been matched by the development of rigorous empirical methods to research them”.

¹⁵ We acknowledge that many theories and concepts may have emerged that conceptualize southern urbanism that may not have been captured in this study. This may be attributed partly to the method employed (search terms and criteria used) as well as the research objectives.

We further this argument based on this review that empirical works on southern cities in planning specifically have focused on large metropolitan cities in the South (an overwhelming majority of the studies in the literature sample referred to large million-plus cities only for theorizing and concept-formulation). In doing so, the theory risks obfuscating differences between South-South cities, risking portraying the South as homogenous.

The above concern has been raised previously by scholars who pointed out how the absence of particular areas within the South is a persistent problem within academic research (Robinson, 2002; Shin 2021). Shin (2021) further notes how “a select number of prime cities situated in India (noteworthy are Bangalore, Delhi, and Mumbai), in Africa (notably Johannesburg, Cape Town and to a lesser extent, Lagos) as well as in mainland China (so-called ‘first-tier’ cities of Beijing, Shanghai, Shenzhen, and Guangzhou) have risen to become key sites of academic inquiries.” We observed a similar pattern through the literature sample in this study with the addition of similar large cities to this list, such as Kolkata, Jerusalem, Beirut, Kinshasa, Jakarta, Kampala, Seoul, and Sao Paolo. We acknowledge that this over-representation of select prime cities from the South may be owing to logistical issues and practical constraints for researchers, and hypothesize that more empirical work originating and led by scholars within local institutions in the South may help in this regard. We contend that much of southern scholarship will benefit from shifting its focus beyond the aforementioned large metropolitan cities toward studying the everyday realities of smaller and medium-sized towns in the global South that are experiencing faster levels of urbanization and increased vulnerability (Satterthwaite et al., 2007, 2020).

We are aware of the post-colonial position that expresses doubts regarding the ‘empirical distinction’ between southern and northern cities, and its usefulness for inquiry. For instance, Lawhon & Le Roux (2019) through their study of the southern representation of urban geography textbooks argued that adding more southern case studies may not be the answer to the persistent northern hegemony in urban theory. They contend that more empirical works in southern cities as a separate location without recognizing the politics of knowledge production can be problematic, since it may risk increasing more hegemonic understanding based on northern-biased education. We are sympathetic toward such views and do not argue that specifically framing southern cities just as separate locations is useful. We agree with the post-colonial perspective that the South is a power relation. However, following Lawhon (2020), we argue further that the South can be seen as a location as well as a power relation that is consciously used to subdue southern voices. In this sense, we believe that planning

theory can benefit from being flexible, and taking cues from both regional as well as post-colonial approaches to southern cities.

At the same time, we also argue that failing to do more empirical work in southern cities can be equally risky. We support this position through three observations. First, consciously limiting more empirical works in terms of exacerbating existing vulnerabilities through lack of representation (of small and medium cities, which do not find mentioned both in the North and South) continue the hegemony of northern theories in planning theory as well as practice in southern cities. Second, many cities in the South have a planning history that goes well past colonial influence (cities such as Varanasi in India), which perhaps require new and combinatory lenses beyond the general northern theoretical lenses or even the post-colonial lenses in isolation (these may include new lenses such as religion and mythology, caste-class relationships, age, and gender). Studying these cities through new positions (both of the researcher as well as the study itself) can provide more space for new methodological tools (that include heuristic, adaptive approach, or simply plain refusal of northern theories and methods). We believe that doing so will address some of the issues related to the knowledge politics that exists currently while enriching planning as a profession and discipline in southern cities.

In the above context, our second argument is related to Schindler's position that southern urbanism has the potential to become part of a paradigm shift in planning studies. Within planning theory, we argue that southern cities have the potential to be observed through a different set of "assumptions and practices" (Innes, 1995; Kuhn, 1970) that are unique to particular geographic contexts. We posit that it may be problematic to assume that the idea of what constitutes urban and the various urban processes that link with this assumption can be fixed across all cities and scales worldwide, with the differences being only locational. This sense of false inclusivity is clear in urban planning practice in southern cities where generally accepted planning approaches such as comprehensive planning and communicative planning have not been successful. Consequently, we seem to rethink the nuanced way of looking at cities in the South through new perspectives and frameworks that may lead us into epistemological or theoretical dilemmas. This, however, does not mean that cities in the South are not comparable to those in the North, but careful and nuanced studies in the South have the potential to provide fresh insights and unique perspectives on urban processes which may not be useful to understanding northern cities. This would mean looking beyond the usual ideas of processes of agglomeration, urbanization, and basic community interactions

toward the lens of vulnerability (especially newer phenomena such as climate vulnerability), the dominance of informality, and permanence of conflict which pose a dilemma on existing theory.

Based on the findings from this paper, we interpret five ways in which southern cities are different from their northern cities (see Table 7) while drawing attention to possible implications on future empirical works in planning. We contend that everyday urbanism in southern cities is characterized by five characteristics where there is a marked difference between southern and northern cities, viz. dominance of informal process and context; weak planning and governance; high vulnerability among resident groups; persistence of conflict; and rapid and differential urbanization. First, informality in southern cities is omnipresent,

Table 7: Five characteristics of southern cities that have the potential for future directions for inquiry within planning and governance studies

Characteristic	Our position	Possible empirical work
Informality is omnipresent and dominant both in urban processes and context	Informal networks are overwhelmingly stronger than in northern cities. Informality is recognized as well as consciously forgotten/used by state planning institutions. Unique urban practices (mostly informal) continuously emerge led by the state institutions as well as informal groups concerning formal rules, plans, and policies.	Analytical studies on state and non-state informality in southern cities, and the role it plays in shaping city planning and governance.
Weak planning and governance systems	Planning and city-level governance systems are undermined due to a lack of transparency, corruption, and lack of coordinated action between actors, as well as the perception of conflict. This makes any planning action difficult to achieve at scale.	Comparative studies between South-South cities; and North-South cities
High vulnerability among residents	Planned action by the state, coupled with historical socio-economic and socio-political risk compounds the vulnerability of resident groups (urban poor, and other marginalized groups)	In-depth ethnographic inquiries into the causal structures of vulnerability, and its effects on adaptive capacity.
Persistence of Conflict	State and non-state actors are in a persistent state of conflict (between and within), resulting in a lack of trust and undermining the possibility of conventional participatory planning approaches.	Study of conflicts in cities, and how it shapes development, risk management, and land use planning
Rapid and differential urbanization	The process of urbanization is unprecedented in terms of scale and temporality but is at the same time differentiated by socio-spatial elements (shaped by self-organization strategies and conflict)	Analytical studies of heterogeneity of cities, and the forms, causes, and effects of differential urbanization.

and extremely dominant in urban processes, networks, and spatial growth in the city spaces, so much so that they may undermine formal planning systems completely¹⁶. Informal power and networks are acknowledged by the formal state actors and institutions in the everyday implementation of planning programs and institutional projects, and thus shape governance configurations immensely. Second, southern cities often show weak governance and planning

¹⁶ It is useful to acknowledge here that the role of informal power and networks (for example grassroots organizations such as neighbourhood associations, rate payers associations etc.) are now well recognized and institutionalized in the planning process of northern cities. However, informality is less dominant in northern cities compared to their southern counterparts.

systems, often due to a lack of resources (funds, technical know-how, and even skilled manpower especially in many smaller towns) which makes any city-scaled plan difficult to achieve (inability to implement basic zoning guidelines despite institutional and legal standing is a good example). Third, a significant population within southern cities is highly vulnerable to a variety of risks, including emergent climate and disaster risks, which are often compounded due to other risks associated with livelihood. Fourth, southern cities often show the persistence of conflict which may range from violent physical conflict, conflicting rationality in action between various state and non-state actors, and a perception of conflict due to a general lack of trust. This makes the conventional participatory planning approaches rather toothless in most southern contexts. Finally, most southern cities (and even rural regions) are undergoing large-scale and rapid urbanization which is unprecedented and is triggering the above four aspects while getting shaped by them. This urbanization is socio-spatially differentiated and largely shaped by existing vulnerabilities, perception of conflict as well as self-organization strategies, often informally.

2.5. Concluding thoughts

In this paper, we set out to synthesize the existing body of knowledge on the growing field of southern urbanism. We mapped influential studies across multiple disciplines, by conducting a systematic review, while also attempting to provide some critical observations on the general directions of research, both in terms of its evolution as well as for the future. We make three main contributions to planning scholarship and practice through this study. First, we created a simplified heuristic conceptualization of various influential theoretical propositions and concepts that encapsulate southern urbanism scholarship. We contend that this will be useful specifically for scholars in planning and related disciplines by providing them with possibilities for combinatory approaches to developing theoretical frameworks in future work. This will also help planning practitioners in southern cities to be more reflective in the planning process, by understanding many of the possibilities that can emerge from these cities. Second, we provided possibilities for future research on the governance and planning systems in southern cities that can bridge southern theory and practice as well as provide methodological innovations through empirical work. Results from such studies can also inspire alternate possibilities in southern urban practice, much of which continues to rely on northern theories. Third, we highlighted five characteristics of southern cities, that may act as a starting point for future works on planning and governance systems in cities in the global

south. We noted that most theorizing in the southern context has emerged from large metropolitan cities, which obscures differences that exist between cities of the South.

While we focused on a qualitative lens, opting to analyze a smaller literature sample, it is possible that we missed out on many studies that make implicit conceptualization of southern cities. Consequently, a larger sample combining both quantitative and qualitative aspects of literature will likely produce different results and interpretations on the development of southern urbanism literature. Further, it is possible that we missed theories and concepts that either emerged after this review exercise was conducted or were not captured owing to the search terms used and research objectives of the study. In this context, we consider some of the results presented in this study, not as a fixed outcome but as a continuous iterative process. We contend that the emergence of more southern theories will contribute to widening the scope of southern urbanism scholarship in planning. We highlighted through this review that there is scope for more empirical works to support theorization from the South, develop new methodological tools for analyzing cities, as well as to develop more nuanced perspectives in the process. With the area garnering interest in the field of planning and governance studies, we contend that much scholarship in the current decade needs to focus beyond the mere conceptualization of southern-ness, towards inquiring about urban processes, structures, and their role in the governance in southern cities.

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Chapter 3: Vulnerability portrayals across climate risk discourses in Bhubaneswar: An evolutionary perspective

Abstract

Climate governance studies suggest that the way climate risk and vulnerability are conceptualized, defined, and managed has consequences for people and places. In this paper, we analyze how different climate risk discourses and their vulnerability portrayals are constructed and have evolved in Bhubaneswar city in India. We conduct a Critical Discourse Analysis of various climate action plans and policy documents, as well as a thematic analysis of semi-structured interviews to interpret their discursive positions on climate issues. Based on our findings, we highlight three main discourses through which risk is constructed – discourses of *inevitability*, *collocation*, and *intrinsic necessity*. The vulnerability portrayals across these discourses are undergoing a transition from a pure outcome vulnerability approach toward a context-based approach, while their framings range from vulnerability to events, places, and social groups. The intertwining of discursive constructions of risk and vulnerability contributes toward constantly forming and re-forming risk and governance objects (and subjects), and the reproduction and resistance to certain forms of knowledge that limit and enable governance responses to climate change at the same time.

Keywords: Climate Risk Governance, Evolutionary Governance Theory, Vulnerability, Critical Discourse Analysis, Dispositive

3.1. Introduction

Cities and state governments are at the forefront of climate governance, action, and innovation in Indian cities (Bhardwaj & Khosla, 2020; Singh et al., 2021). Studies have highlighted the increasing risks associated with an unprecedented rise in global temperatures driven by anthropogenic activities (IPCC, 2007a, 2021, 2022). In Bhubaneswar city in India, the legacies of modernist planning and naturalized experiences with disaster events in the last two decades¹⁷ have given rise to heightened awareness and institutional acknowledgment of the significance of creating plans and policies specific to newer challenges related to the

¹⁷ The 1999 super cyclone that caused massive destruction in Bhubaneswar was a turning point in Odisha, causing institutional and organizational changes in the area of the disaster management (see Appendix C & D for a list of disaster events in Odisha in the last two decades, and chronology of plan/policy response at various government levels respectively).

changing climate. Scholars have previously framed the climate initiatives in Bhubaneswar as power in translation through various levels of urban governance, where different actors and institutions contest plans and policies through their ability to translate climate information (Chu, 2015; Jogesh & Dubash, 2014). Bhubaneswar symbolizes the dilemma that the formal institutions in many southern cities have in terms of catering to socio-economic challenges (especially poverty, since nearly one-third of the state population is categorized as multi-dimensionally poor), and setting collective goals for climate action which requires significant institutional capacity and financial resources.

Bhubaneswar city was chosen as the case for this study due to multiple reasons. The city is in close proximity to the Bay of Bengal region in South Asia and has historically experienced multiple disaster events for centuries. Since 2010, however, the frequency and intensity of disasters have increased in the region owing to climate change (14 of 27 disaster events since 1996 have occurred post 2010, see Appendix C). There is a general local institutional awareness of climatic and non-climatic risks as well as the existence of specific actors and institutions to address climate governance issues. The plans and policy responses themselves have undergone frequent iterations, evolving with the fast-paced urbanization spatial growth over the past two decades. Most climate governance initiatives in the city are based on social-ecological systems (SES) theories and the more normative goals of resilience thinking that have dominated urban theory and practice in the past two decades (Berkes et al., 2002; Folke, 2006). Yet, many of the resilience approaches have limitations due to being overtly prescriptive, failing to recognize local contextual factors, as well as perpetuating new risks and vulnerabilities (Davoudi et al., 2012; Meerow & Newell, 2016; Partelow, Schlüter, Armitage, Bavinck, Carlisle, & Gruby, 2020; Vale, 2014).

In this paper, we offer some empirical insights on how risk and vulnerability framings around climate change are discursively constructed, and how they emerge and transform in time and in relation to each other in Bhubaneswar. We examine how the constructions of risk are always evolving in time, portraying particular framings of vulnerability through the processes of competing and contradictory discourses, accommodating and obscuring particular ways of observation and decision-making, excluding and including particular actors, institutions, and identities (Aragón-Durand, 2011; Foucault, 1972; Van Assche, Beunen, & Duineveld, 2012). The overarching aim of this paper is to understand how the discursive construction of risk and vulnerability has evolved to influence climate policy and planning in Bhubaneswar city since the initial plans began in 2010.

We employ two research questions in this paper:

- 1) How have different framing of climate risk discursively constructed and evolved in Bhubaneswar since 2010?
- 2) How is climate vulnerability portrayed across these discourses?

We will argue that particular ways of framing risk and vulnerability enable and limit knowledge around policy responses, and have implications for urban development objectives in climate governance. We focus our attention on the climate plans and policies in Bhubaneswar city in Odisha state in India that have emerged since 2010 when the first action plan for climate change was prepared in Odisha, in response to calls for city-scaled initiatives in the international and national discourse on climate change. In addition, we map two distinct moments of transformation in the climate governance evolution in Bhubaneswar which can be seen through distinct governance contexts (new actors, institutions, discourses) across time.

Local and state-level plans and policies in Bhubaneswar are directly or indirectly influenced by international commitments by India, national goals of balancing climate action with urban development goals, local risk, and vulnerability assessments as well as being mindful of local governance issues that impact the materialization of plans and policies. In the international discussions around climate change, the South Asian region around the Bay of Bengal is framed as being among the most vulnerable areas to the effects of changing climates, such as changing land and sea temperatures, unpredictable precipitation patterns, and an increase in frequency and intensity of disaster events, as well as internal weaknesses such as high poverty levels, livelihood issues and weak institutional context (Barua, Narain, & Viji, 2019; IPCC, 2007a; Parikh, Jindal, & Sandal, 2013). Yet, few studies have examined the changing local-scaled climate initiatives embedded within the state and city-scaled governance in southern cities (Barua et al., 2019; Boyd, 2013; Dubash & Jogesh, 2014; Dulal, 2019; Heinrichs, Krellenberg, & Fragkias, 2013; Thaker & Leiserowitz, 2014).

We use a constructivist lens to make sense of the process of entwining risk and vulnerability lenses in the governance process. We acknowledge the recent calls to contextualize urban theory through southern sensibilities, (Roy, 2009b; Satgé & Watson, 2018; Watson, 2009b), and consequently, examine the concepts within the Indian context. The understanding of discursive constructions and evolution contributes by adding texture to the discussion on southern urbanism, especially on the peculiarities of governance decision-making around

risk, as well as the risks emerging from the institutional arrangements and knowledge politics (Lawhon et al., 2020; Parida & Agrawal, 2022; Schindler, 2017b). We use several ideas from the Evolutionary Governance Theory (EGT) in this study (Beunen et al., 2015), while also drawing from literature on social-ecological systems and resilience thinking (Adger & Kelly, 1999; Adger, 2000; Berkes et al., 2002; Folke, 2006; Folke et al., 2004; Veelen, 2016), and discourse theory. EGT is a combinatory theory comprising various elements from social systems theory, discourse theory, and evolutionary biology. EGT is useful to make sense of change in governance paths and contexts, through constant systems-level interaction and interplay between actors/institutions, power/knowledge, and discourses (Assche, Beunen, & Duineveld, 2015; Assche et al., 2017). EGT assumes that various elements of governance (actors, institutions, and discourses) are always changing and evolving into new configurations through co-evolutions that are contingent, hence not predictable. In this sense, the EGT lens attempts to make sense of this complexity within the governance system that is inherently unstable, and which can be understood through constant observation and reinterpretation (Beunen et al. 2015).

Scholarly works have emphasized the role of institutions and particular actors in perpetuating risk and maintaining vulnerabilities in space and time (Aragón-Durand, 2007, 2011; Singh & Basu, 2020; Zaman, 2021). Climate change issues in cities are understood, constructed, and mediated through discourses, which makes the main institutions (plans, policies, and laws that coordinate climate action between actors) a logical site of inquiry. Discourse here refers to an institutionalized way of communicating through a structured set of ideas and concepts, that enables us to make sense of reality (Beunen et al., 2015; Jäger & Maier, 2009; Link, 1983). Any discourse is partial, always constructed through other discourses, and always has other elements of reality that it fails to capture. Critical Discourse Analysis is chosen here since it starts with prevailing social problems or issues, and thus looks at language as situated within a particular socio-cultural context. It helps us critically analyze those in power and is thus useful in finding blind spots within the plans and the social practices they enable or resist (Fairclough & Wodak, 1997). In this paper, we employ the critical discourse analysis approach by Jäger & Maier, (2009) to analyze the process of construction of risk and vulnerability, governance objects, and forms of knowledge in Bhubaneswar.

In the rest of the paper, we will elaborate on several aspects of the paper. In Section 2, we provide a brief overview of scholarly works on risk and vulnerability, and in Sections 3 to 5, we discuss briefly the theoretical framework, a brief introduction to the study area and

context, and methodological considerations in the study. This is followed by findings and discussion in Section 6 and concluding arguments in Section 7.

3.2. Risk and Vulnerability in climate studies: a brief overview

In this section, we briefly describe how climate risk and vulnerability have been conceptualized within different scholarly literature, focusing on perspectives of social-ecological systems studies, and resilience scholarship on climate change and urban governance. In scholarly research on climate and development, risk has been conceptualized in three main ways. First, risk has traditionally been conceptualized from a naturalized perspective, as a function of biophysical and technological hazards that negatively impact the safety of a social system. This conceptualization has been used in combination with systems theories within SES (social-ecological systems) and resilience scholars wherein the planning and governance goal is based on a normative goal of making the system resilient (through risk analysis and management) to environmental risks to maintain a safe and desired system/environment equilibrium or in short a risk vs safety approach (Folke, 2006; Lebel et al., 2006; Meerow et al., 2016). In practice, this perspective can be located within disaster management studies, that focus on risks from disasters that are seen as external, natural events to which society must adjust itself (Zhou et al., 2009). Risk is seen as deterministic and technical, it assumes that certain ‘known’ hazards are certain to occur in the future and hence measurable. Risk may also be conceptualized in this way assuming it is a ‘natural’ part of unavoidable ‘fate’, which is beyond the capacity of society to influence in any way (Aragón-Durand, 2011; Heijden, 2021).

The second conceptualization of risk comes from the constructivist perspective, wherein risk is seen as located within the society rather than outside it (Aragón-Durand, 2011; Heijden, 2021; Ribot, 2010; Wisner et al., 2004). Scholars acknowledge the role of physical factors in environmental risk, yet emphasize the role of the individual (or communities, in the context of a city) and societal factors. Risk thus becomes a social construction through social interactions, a matter of choice and not fate. This approach triggered extensive research within the social sciences that focused on a vulnerability-centered risk approach that takes into account internal weaknesses such as risk perception of individuals/communities, socio-economic and spatial differentiation, inequality and livelihood issues within communities and cities (Ribot, 2010; Singh, 2014; Singh et al., 2021; Wisner et al., 2004). This change in

direction was also observed within resilience and SES theories that now place climate risks both in hazards as well as society (Adger, 2000; Folke, 2006; Müller, 2011; Neil Adger & Kelly, 1999; Pelling & Dill, 2010; Walker et al., 2004).

The above two conceptualizations of risk have been critiqued by scholars who contend that it weakens and de-socializes vulnerability by avoiding the root causes of risk in a system (Füssel, 2006; Füssel & Klein, 2006; O'Brien, et al., 2007). A third conceptualization of risk coincides with a discursive turn, with risk being described as a “combination of concrete and tangible circumstances on the one hand, and representations and discourses on the other” (Rebotier, 2012). This thinking is in line with Luhmann's (1993) risk/danger distinction, as the internal attribution of possible harm (danger) that is externally attributed. Risks are thus risks that do not emanate out of external climate threats, but our ability to observe, internalize and take decisions within the system. Within the constructivist paradigm, risk can be seen as a combination of place, society, and time (Gemenne, Barnett, Adger, & Dabelko, 2014; Innis & Van Assche, 2022; Nisbet, 2009; Rebotier, 2012). Taking this further to the application within cities (as social-ecological systems), we can interpret that climate risks can emanate out of framing and decision-making around potential climate-induced threats, wherein there are new risks that may be generated from the decisions themselves. Risks are always thus overlapping, combining, and shifting in time, which poses limitations in their observation and makes risk-based decision-making a challenge (Innis & Van Assche, 2022; Müller-Mahn & Everts, 2012). Risks identified and policy decisions from different functionally differentiated systems (cf. Luhmann 1995) can be potentially risky for other systems (lack of risk knowledge may lead to risk mapping/new regulations, which may generate new spatial risks in particular communities through displacement, evictions, etc.). This approach is more reflexive compared to the previous conceptualizations since it acknowledges that recognition, perception, assessment, and management of risk are politically motivated and given meaning by actors through discourses, thus affecting power relations, knowledge production, and systemic responses. Consequently, our position aligns with this perspective (third) of risk which we develop further in the paper.

Along similar lines to risk literature, there has been a significant advancement in scholarly works in areas of environmental and climate vulnerability. Füssel & Klein, (2006) define climate vulnerability as the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change”. By the 1970s, scholars began to question whether disaster

risks can be attributed to being natural. The natural hazard and disaster management fields, as well as SES and resilience theorists in the 1990s and early 2000s, conceptualized vulnerability as a combination of society's exposure to environmental threats (nature of risk), sensitivity (impact of risk), and adaptability (capacity to cope and adapt). This perspective sees vulnerability as residual, determined by measuring the extent to which a society cannot deal with known future risks after all possible mitigation and adaptation are carried out (McCarthy et al., 2001). Vulnerability is often framed as vulnerability to particular events (floods, cyclones, and so on). Within SES approaches, Kelly & Adger (1999) identified two main approaches to vulnerability – the *end-point approach* (naturalistic perspective, that sees vulnerability as an outcome of a disruptive event); and the *starting-point approach* (constructivist perspective, which sees vulnerability as an enabler of climate change effects).

These two interpretations have led the way for most vulnerability research in the past two decades (Cutter, Burton, & Emrich, 2010; Füssel & Klein, 2006; Adger & Kelly, 1999; Pelling & Dill, 2010; Singh & Basu, 2020; Wisner et al., 2004). O'Brien et al., (2007) proposed an improved framework for vulnerability interpretation based on the above, viz. outcome, and contextual vulnerability. Outcome vulnerability is similar to the previous idea of vulnerability as residual, described as the “linear result of the projected impacts of climate change on particular exposure units (biophysical or social)”. Contextual vulnerability, on the other hand, is a non-linear, multi-dimensional view of climate-society interactions, and begins with current contextual conditions (biophysical, technological, socioeconomic, and institutional) as core drivers of vulnerability. However, both these interpretations do not give enough space to the role of discourses in their constructed nature. Rebotier (2012) highlights the significant role of discourses as critical drivers of risk and vulnerability construction that are always competing within the system. In this paper, we use the two interpretations by O'Brien et al. (2007) – outcome and contextual vulnerability – as starting points to understand vulnerability framings and interpretations in the study area and add discursive elements to their framework to help interpret vulnerability portrayals within risk framings in the case.

3.3. Theoretical framework

We use Evolutionary Governance Theory, or EGT by Beunen et al., (2015) as the main theoretical lens in this study. EGT is a combinatory theory, drawing from multiple theoretical perspectives – Luhmann's social systems theory (and through it to evolutionary biology and

general systems theory), institutional economics, and post-structuralism. We chose an EGT approach since it has a clear constructivist orientation, and theoretical openness as well as is normatively neutral. EGT emphasizes two main characteristics of governance – context and co-evolution. Governance interventions have to start with understanding the existing community as well as the governance context that is influenced by history. Also, governance is radically evolutionary and inherently unstable. Change is not random, but always there, even though only partially observable. From this perspective, governance is always contingent, discursively constructed, and evolving through self-transformation.

While the conceptual landscape of EGT is rich, of relevance to this study are the two concepts of *co-evolution* and *transformation*. *Co-evolution* refers to “the entwined evolution of two systems or entities, whereby changes in one affect changes in the other” (Beunen et al., 2015, p 336). In this paper, we use this idea to understand how the emergence and re-emergence of various discursive constructions of climate risk and vulnerability affected the other elements of governance (actors, institutions, existing and past discourses, forms of knowledge), and resulting formal policy responses in Bhubaneswar. *Transformation* is an important part of interpreting the change, they refer to distinct episodes in which novel discourses of risk emerge, often in adaptation to the changing environment of the social system. Transformation is always self-transformation i.e. it originates within the system, through changing modes of communication and coordination (new interactions between actors and institutions to produce new discourses, power relations, knowledge, and institutions). Plans and strategies are self-referential, they refer to previous plans, and their interpretation requires us to use the old and new context and conceptual evolution (Van Asche et al 2014; Beunen et al., 2015; Djanibekov & Valentinov, 2015). Transformation can be identified through observing new goals of governance, changing interpretation of historical context, and new rules of coordination. We use transformation to help identify particular episodes (moments) in which the governance path changed and to map their effects on the present governance system.

The key elements of governance are actors, institutions, and discourses that mediate the various processes that influence governance. Actors here refer to individuals, groups, or organizations that participate in a particular governance system. Institutions refer to defined roles of actors and rules of coordination between actors, such as rules, laws, plans, and policies (in this study, we consider the climate action plans and city-level strategies as institutions coordinating climate action in Bhubaneswar). We refer to discourses as an

institutionalized way of communicating (in this case through plans, policy, legal regulations, media reports, etc.) that is structured and enables us to understand certain aspects of reality or a phenomenon (Beunen et al., 2015; Jäger & Maier, 2009; Link, 1983).

Although nascent several studies in planning and governance have used the EGT lens in climate and governance contexts, both theoretically and empirically. The study focus is wide, ranging from focus on critiquing resilience as a meta-configuration of actors, institutions, and power/knowledge that evolved from the discourses of sustainability, where particular forms of knowledge of resilience undermine resilience by excluding other knowledge and discourses (Hillier, 2015); to the evolution of ‘urban warming’ as a climate governance object and its effects on climate change adaptation (Bozeman & Kooij, 2015); on the co-evolutions of social actors and institutions in communities (Djanibekov & Valentinov, 2015; Birchall, 2019); and the interactions between social and ecological systems and its impact on rigidities and flexibility in adaptation (Djanibekov & Valentinov, 2015; Van Assche, Gruezmacher, & Beunen, 2022).

Following EGT and the previous works, we interpret the governance of climate change in cities as the governance of climate risk and vulnerabilities that are constructed through discourses that constantly evolve, compete and transform in time. Every communication of risk through observation, decision, and interpretation is a contingent construct of the actors/institutions in a particular context. Constructions of new risks and vulnerability (within plans, policies, rules, and laws) refer to previous conceptualizations of risk and vulnerability in the past. These constructions are always a choice, that is determined by power relations between actors – results in new risks, new vulnerabilities, new forms of knowledge and undermines others, as well as a new creation of power relations through governance objects (and subjects). Using these ideas, we develop three distinct framing of risk which are interpretively constructed through an entanglement of discourses, codified forms of knowledge, and governance objects/subjects. These help us understand the nature of change in vulnerability interpretations as well as resultant policy responses across the plans and policies in Bhubaneswar.

3.4. Study area and climate governance context

Bhubaneswar is a historic city in eastern India and the current capital city of the state of Odisha (see Figure 3). Odisha state is situated on the eastern coast of India along the Bay of Bengal. The state has a coastline of nearly 480 km, which has experienced multiple climate-

related extreme events for decades (Walch, 2019). Since the 2010s, Odisha has been arguably a front-runner for its proactive and rather successful disaster management practices (Outlook India, 2019; Senapati, 2021). The formative years of Bhubaneswar in the post-independence era in India (since 1948) were built around conflicting rationalities around the vision and identity of the city, yet the main approach was planning through modernist design principles. The conflict during the design of the new town was seen between the architect, Otto Koenigsberg's vision for Bhubaneswar which was along secular lines (also aligned with the socialist vision of the then central government) where religious history would play no role in the modern state on the one hand; and the local elites' emphasis to maintain the divinity and Hindu religious identity that Bhubaneswar has carried since the 10th century. The outcome was a hybrid of the two visions, which was seen through the architecture of the state-building structures in the 1950s and 1960s which carried architectural motifs from modernist forms as well as Hindu and Buddhist styles.

Between the 1960s and 1980s, there was limited growth in the city's economy and growth, yet this time coincided with the local elites (in the absence of the influence of modernism-led architects and planners) grappling with finding the identity of the state in national politics as well as dealing with socio-economic pressures (specifically of high poverty levels. A turning point came in the 1990s post-liberalization¹⁸, with the economy of the state booming and with its rapid growth in population in the city, mostly through rural-to-urban migrants who came and settled in the city in search of livelihood opportunities. By the early 2000s, the city grew and the local economy boomed. The planning system currently is now dominated by institutional approaches, especially oriented toward New Public Management approaches, with an increased role of private actors while the role of formal planning institutions and actors is limited to the enforcement of broad rules and regulations.

A seminal moment for climate policy in India was in 2008, with the formation of the National Action Plan for Climate Change (NAPCC) by the central government. Following the NAPCC, various states were directed to formulate State Action Plans for Climate Change (SAPCC) within the overall national framework. Odisha state was one of the first in India to formulate a SAPCC in 2010, which has since been updated twice in 2015 and 2018. The

¹⁸ Liberalisation here refers to the opening up of Indian economy in 1991, allowing more private and foreign investment, while making the economy more market and service oriented.



Figure 3: Map of India showing locations of Odisha state and Bhubaneswar city (Base map sourced from www.bharatmaps.gov.in)

drivers of the plan were ongoing international negotiations on climate change, the potential to attract international donor agencies, and local development interests (Jogesh & Dubash, 2014, 2015; Pillai & Dubash, 2021). Bhubaneswar city, at present, follows the SAPCC for its local climate initiatives, disaster management and risk communication, while also receiving assistance from local and international agencies (Parida, Moses, & Rahaman, 2021).

The State Climate Change Cell is a key institution for the conception of actions (with technical assistance from international agencies such as the World Bank and UNDP), and the local organizations i.e. BMC (Bhubaneswar Municipal Corporation) and BDA (Bhubaneswar

Development Authority) are responsible for planning and implementation in Bhubaneswar. The Ministry of Environment, Government of Odisha is the key link between the state and national levels in terms of political linkages, while the Climate Change cell is the institutional point of knowledge co-creation in the city and state.

In Bhubaneswar, experience with disasters has had a deep impact on public and institutional memory, which continues to face disaster events, while the nature of these events is now changing due to the effects of climate change (such as high intensity and high frequency of climate shocks, changing rainfall patterns, soil salinity change) (Government of Odisha, 2015, 2018). The SAPCC identifies several risks and vulnerabilities to the city across all three iterations since 2010. We shall explore these more in Section 6, through the identification of risk and vulnerability framings through various discourses on climate and development.

3.5. Material and methods

3.5.1. Setting and Method

We use a qualitative methodological approach in this study. As described earlier, we work within the underpinnings of a constructivist and evolutionist approach, wherein we understand climate risk and its governance issues as socially constructed reality (rather than just a natural phenomenon), always evolving within governance contexts into new paths and mediated through communication and material action. In this sense, we understand that the (partial) way risk and vulnerability are discursively constructed within climate change plans and policies play an important role in how policy responses and actions are formulated and materialized. We adopt an adaptive approach to the study, drawing from Van Assche et al., (2021) who describe that various aspects of research i.e. the “topic, theoretical framing, method, and data are in principle open to adaptation during the research process”. We are also mindful of the call by Alvesson & Gabriel, (2013) for the false impression within qualitative methodologies to give the impression of a linear, step-by-step and logical sequence of procedures (of data collection, coding, categorizing, theorizing, etc.). They explain further that the actual process of research often involves “ambiguity, messiness, theory-impregnated data, and leaps of intuition with a post-facto invention of rational methodology” (Alvesson and Gabriel, 2013, p. 250). The fieldwork, data analysis, and

presentation of results are conducted in the spirit of embracing the complexity and messiness of the research as well as the governance context of Bhubaneswar that it aims to capture.

We employed a case study method for this study, (Yin, 2009, 2012). The case study approach fits naturally in planning research; since allows flexibility to use different methods of data collection as well as in-depth analysis (Flyvbjerg, 2006; Maxwell, 2013; Ruddin, 2006; Yin, 2009). In general, a case study is defined as “an intensive study of an individual unit of interest” (Stake, 1995). This approach is appropriate for answering ‘how’ and ‘why’ questions about a phenomenon, and is employed in situations where “the researcher has little or no control over the phenomenon of interest” (Yin, 2018). The case study method allows us the flexibility to use different methods as well as in-depth analysis. Many city and state climate policies in India often overlap and are exercised at the state level (sub-national) in the absence of city-scaled climate strategies and plans. We study plans and policies both in Odisha and Bhubaneswar city, employing discourse as the unit of analysis. We describe the process of employment of discourse as a unit of analysis in the next section 5.2.

3.5.2. Data and Analytical approach

We draw on the analysis of documents related to climate change plans, policy documents, media articles; and semi-structured interviews as the techniques for data collection. In total, we analyzed eight documents relevant to climate initiatives in the study area using the Critical Discourse Analysis that is described later in this section. The eight documents included *three* State Action Plans in 2010, 2015, and 2018, *one* document including the meeting minutes of the State Climate Change Cell, *one* Smart City Proposal in 2015, a Vulnerability Assessment in 2014, a World Bank Summary report on the implementation of climate plan in 2017, and Climate Budget 2022). We did not conduct a discourse analysis of the media articles and interviews and relied on them for additional information, context and validation at a later stage of the study, which then was used in interpretation and writing. Consequently, the results from discourse analysis hold more weightage in this study compared to other sources of data. We interviewed urban planners, municipal practitioners, bureaucrats, journalists, academic experts, and private sector consultants for the study. In total, we conducted 21 semi-structured interviews between June 2020 and September 2021 (face-to-face as well as telephonic conversations owing to the restrictions due to the Covid-19 pandemic) – 9 state actors (senior urban planners, engineers, and municipal officials), 3 non-

state actors (private climate consultants to the state), 7 academic experts (at local, state and national level), and 2 climate activists¹⁹.

Critical Dispositive Analysis (CDA)

Broadly, scholarly literature on discourse analysis points at three main approaches viz. Laclau & Mouffe's Discourse theory, Critical Discourse Analysis; and Discursive Psychology (van Dijk, 2009; Fairclough & Wodak, 1997; Jäger & Maier, 2009; Leeuwen, 2009; Phillips & Jørgensen, 2002). Discourse theory is based upon the idea that discourses construct the world by providing meaning to it, and nothing exists outside of them (Laclau & Mouffe, 1985). However, it is often unclear how to filter out relevant discourses from infinite discourses in a context (Phillips & Jørgensen, 2002). Critical Dispositive Analysis (henceforth used as CDA in this paper) differs from the other discourse theories since it differentiates between discursive and non-discursive elements (such as action or material). CDA was used in this study due to its openness to combine several methods, as well as the clear process of analysis provided in the foundational literature by Jäger & Maier (2009).

Within the conceptual landscape of CDA, the main elements of discourse have to be outlined here. Discourses occur within *discourse planes*, which are broad spheres within which the discourse takes place, similar to the functionally differentiated systems (in this case we locate the climate plans within the plane of governance and planning). Each discourse plane has several *discourse sectors* that are categories/themes within the plane (in this study, climate risk governance). *Discourse position* refers to the “position from which subjects, including individuals, groups, and institutions, participate in and evaluate discourse” (Jäger & Maier, 2009). It can refer to the ideological or normative position on governance/society in general.

Within a specific discourse plane and sector, there are *discourse strands* and *discourse fragments*. Discourse strands may be imagined as ‘themes’ that are directly related to a common topic (and a sub-topic or multiple sub-topics) within a discourse. Discourses are broad and abstract, while discourse strands are “at the level of concrete utterances or performances located on the surface of texts” (Jäger & Maier, 2009). A *discourse strand* on one topic consists of multiple discourse fragments. A *discourse fragment* is the actual “text of

¹⁹ There is noteworthy debate among qualitative research about how many interviews are enough for a qualitative study. The general approach of purposive sampling employed in qualitative research is based upon the idea of saturation of data. This approach focuses on the richness of the data collected as opposed to the quantity, drawing from Maxwell, (2013). Guest, Bunce, & Johnson, (2005) attempt to build upon these ideas and propose that between six and twelve interviews are ‘generally’ enough for most inquiries unless there are certain exceptional circumstances.

part of a text that deals with a particular topic” (Jäger & Maier, 2009). Discursive knots or entanglements refer to statements within a text where various discourse strands entangle with each other. For example, the discourse on climate resilience often gets entangled with other discourses such as participatory planning, environmental justice, and poverty. These entanglements are complex, but often put limitations on what can or cannot be spoken, also known as *discourse limits*. Following CDA, *discourse fragments* are the basic unit of analysis in this study.

CDA prescribes three broad steps for conducting discourse analysis – *structural analysis*, *detailed analysis*, and *synoptic analysis*. Structural analysis is the initial phase of identifying a few main topics and sub-topics related to the research question within the set of articles identified. The outcome of structural analysis is a set of discourse fragments that are then subjected to detailed analysis. We prepared a list of 35 discourse fragments from the data (CDA approaches prescribe working through a small quantity of data as opposed to large datasets). Following this, we conducted a *detailed analysis* that includes analyzing the context, surface analysis, and content analysis of the discourse fragments (see Table 8).

Table 8: Framework for CDA used in this study (adapted from Jäger & Maier, 2009)

Analytical approach for CDA	
Discourse plane	Politics, Governance, and Planning
Discourse sectors	Environmental governance, Urban Resilience, Climate Change Adaptation
Topic	Climate risk, Vulnerability, Urban Development
Sub-topics	Informal urbanization; rural-urban migration; smart growth; participation and inclusion; climate resilience, climate change adaptation, and disaster risk reduction.
Detailed analysis	
1. Context analysis	Discourse position How is the discourse peculiar or typical?
2. Surface analysis	Keywords used Discursive entanglements with other discourses and topics
3. Content analysis	Key idea or argument
3.1. Risk portrayal	How is risk framed? Through what stories What assumptions - informal beliefs or collective symbolism Which actors are involved? To govern what? Nature of evidence or reference provided
3.2. Vulnerability portrayal	How is vulnerability portrayed in the discourse? Connection with wider discourses.
Synoptic analysis	Discourse position; Forms of knowledge reproduced/undermined

In Table 8, we interpreted the content analysis further to bring it closer to the research question at hand. Finally, we conducted a *synoptic analysis* which involves a final assessment of the document's discourse position, its relations with power relations, and forms of knowledge to arrive at overall conclusions related to the research question.

Once we arrived at the overall results from the CDA, we used the two framings of vulnerability by O'Brien et al. (2007) – outcome and contextual vulnerability – to interpret the entangled meanings of vulnerability within the identified constructions of climate risk and vulnerability. Further, we transcribed all interviews and coded them for descriptive and thematic codes using NVIVO software. Following this exercise, we arranged all the codes in sequence based on time (year) to understand the overall flow and change in discourses in time. The codes used for analysis were a mix of inductive and deductive codes, within the broad discourse sectors and sub-topics. The results of CDA carry more weightage in this study, and the interviews helped us map out the change in discourse in time as well as validate our interpretive judgments on the discursive positions through CDA. Consequently, in the next section, we shall discuss the risk and vulnerability portrayals through the presentation of discourse fragments in quotes (partially or in full).

3.6. Findings and discussion

This section presents the main findings from the study in two parts. First, it introduces the results from CDA analysis and the discursive construction of climate risk framings, their vulnerability portrayals, and policy responses through the construction of three discourses. Second, we map two moments of discursive transformations and their consequences on climate initiatives in the study area. As mentioned earlier, we identify the discourse plane as governance and planning, and sectors as climate risk governance, climate policy, and adaptive cities. Within the documents analyzed, we can easily identify that the plans are spoken from an expert position (city and state bureaucrats and climate consultants are the subjects here). The documents emanating from the institutional sites of formal, legally sanctioned policy spaces – the local municipal bodies, development authorities, and state departments.

For the structural analysis within CDA, we identified the *topics* as climate risk, vulnerability, and urban development. An initial reading and careful examination helped us map the initial list of descriptive codes, and subsequently arrive at the *sub-topics* – informal urbanization; rural-urban migration; smart growth; participation and inclusion; climate resilience, climate

change adaptation, and disaster risk reduction. These topics/sub-topics were used as the initial deductive codes for the interviews, as well as to arrive at the final list of discourse fragments for detailed analysis. A combination of detailed analysis and thematic analysis from interviews are showcased in three distinct discourses that were constructed from the discourse fragments (each quote described further in this section is a discourse fragment): *discourses of inevitability, collocation, and intrinsic necessity* (see Table 9).

3.6.1. Three discourses on climate risk

Discourses of Inevitability

Under this discourse, climate risk is framed as an external reality that the city/state governance system cannot avoid or is helpless against. This position was seen within the initial State Action Plans in 2010 and 2015, wherein the underlying assumption of state institutions is that climate risks are linked with extreme events such as ‘natural’ disasters and changing biophysical systems. Framing the climate threat through natural hazard discourses, the SAPCC report mentions:

“...95 of the last 105 years, Odisha has been affected by disasters brought on by heatwaves, cyclones, droughts, and floods. Since 1965, these calamities have become more frequent and widespread... ..Odisha is susceptible to cyclones and drought, and its 480 kilometers of coastline also make its coastal communities and infrastructure vulnerable to the rising sea level.” – SAPCC 2015, P. 5

The emphasis on nature was seen both in the climate plans, and vulnerability assessments as well as emerged during interviews. For example, the SAPCC (2018, p.4) attributes climate risks to “natural calamities (that) have seriously affected household income and set back the state’s economy.” This thinking was echoed by a state official (interviewee) as follows:

“The quantum of rainfall has remained constant; the distribution of rainy days has reduced by more than half. So we are bound to suffer. And further to this, within these 50 days, the most rainfall is captured in 20-24 days. That means about 70 percent of the annual rainfall comes in 20 days. You are bound to get floods in the city...”

Several statements such as these were found throughout the documents analyzed, which project the natural world as the source of climate risk and the state as the unfortunate victim (nature as an enemy, state as the victim). This way of thinking however overlooks that risks can be seen beyond dangers, forgets that risks also provide opportunities to rethink and steer

governance in new directions, and forgets to provide agency to the existing city actors and institutions. This discourse is constructed within the documents and interviews by experts through entanglements with other discourses (discursive knots) – through environment discourse, and economy discourse (danger to state’s economic growth). Across all three SAPCCs, the economic risks are associated with risks to industrial growth and risks from depleting natural resources – “water scarcity severely affects many industrial processes. Floods and cyclones damage industrial infrastructure and also affect industrial productivity” – (SAPCC 2018, P xvii). Other entanglements are seen with health discourses, wherein lack of water supply is identified as an extrinsic risk that will cause inevitable soil salinity issues, agricultural output reduction, challenges to mining activities, and managing diseases during heat wave events.

Consequently, vulnerability is framed as vulnerability/exposure to specific known and high-probability shock events. The SAPCC 2018, (P. xix) articulates this as “urban assets and life are exposed increasingly to the risk of cyclone, heat wave, urban flood, health, and earthquake”. The SAPCC 2010 and 2015 and UNDP Vulnerability Assessments (UNDP, 2014) are strongly oriented towards the natural hazard, disaster risk reduction and resilience discourses have strong references to outcome vulnerability, mainly through the use of a biophysical frame. Other strong indicators of outcome vulnerability are seen in the form of future risks using scenario models as a source of evidence presented in the action plans.

Together, the discursive knots and the climate risk and governance objects/subjects reproduce the knowledge that climate-induced disasters are the root cause of risks to the state and city economy, and economic resilience is the best response. At the same time, it also undermines other societal and contextual factors that are relevant contributors to climate risk practices and their outcomes. The framings of vulnerability and risk result in the creation and stabilization of various risk and governance objects. The policy responses within the discourse of inevitability are still remarkably modernist (also influences of disaster resilience), and focused on “mainstreaming disaster risk reduction into infrastructure project design, strengthening communication networks and disaster management facilities at all levels” (SAPCC 2010, P. 9), while there is also focus on maintaining existing economic conditions through mitigation and adaptation projects (such as cyclone shelters, disaster resilient public infrastructure, multi-hazard mapping, bylaws updating for mitigation, etc.). The relevant governance objects are industry output (decreased output indicates a high impact

of climate), risk maps that are institutionalized into risk management decisions, and risk assessment models that show the probability of the occurrence of hazards.

Discourses of collocation

Under this discourse, climate risk is located within the communities and urban spaces in Bhubaneswar, often conceptualizing layered identities within spaces, and community groups as well as juxtapositioning climate and development issues through policy responses that can be mapped through multiple discourses of development, environment, economy, health, education, technology and law.

The inability of the formal institutions to monitor and manage the seemingly dual issues of local developmental challenges and climate change threats are problematized through this discourse. Climate and development issues are seen as distinct, yet related, and thus solutions can have overlapping effects (as effective climate adaptation effects as well as advance development objectives). The climate risks identified and linked with the existing development patterns of the SAPCC 2018 – these range from lack of resources within existing state and city departments to invest in mitigation projects (financial risk, institutional and organizational risk); increasing GHG emissions and pollution by industries (environmental risk); disease outbreaks due to urban warming/flooding (health risks); migration and resulting informal urbanization patterns within flood risk areas (socio-spatial risks); and individual habits of consumerism and lack of awareness around waste segregation affecting city's emission reduction goals (behavioral risks).

The evolution in discourse can be seen as an outcome of the entry of new actors and institutions within the governance system in Bhubaneswar since 2014. We map this event as we map as the *first moment of transformation* in the climate governance context of Bhubaneswar; wherein distinct new climate risk objects surfaced. These transformations were likely triggered by the international discourse on climate (The Paris Agreement in 2015 was actively covered in the national and state media), as well as the need to go beyond the general rhetoric in the earlier plans to overlap them with local projects and risk knowledge to achieve the goals set in the climate plans. To do this, the state government collaborated with international agencies such as World Bank and UNDP (United Nations Development Programme) to assist them in achieving specific objectives of the climate plans related to risk

assessment and management. For example, in 2014, the municipal government collaborated with the UNDP to conduct a Hazard Risk and Vulnerability Analysis (HRVA) aimed at reducing “disaster risks in urban areas by enhancing institutional and community resilience to disasters and climate change” (UNDP 2014, P. 5).

“Floods and waterlogging in the low-lying areas of the city have also become common due to unplanned growth of the city..... The city’s rapid growth has converted vegetative areas, low-lying water bodies, and open spaces into built-up spaces. The built-up environment has increased the rainfall-runoff, leading to water inundation problems in many parts of the city” – UNDP, (2014, P. 6)

Consequently, drainage became a risk object in Bhubaneswar, and with subsequent flash floods in coming years, it turned into a governance object, through multiple political protests by communities and political debates within the state legislative assembly, ultimately leading to the start of a city drainage plan in 2021. Further to this report, the Smart Cities Mission²⁰ was introduced in 2015, which further created new climate governance objects through discursive collocations in the climate plans, such as the collocative construction of new governance objects of ‘climate-smart cities and neighborhoods’ and ‘low-impact carbon neutral development’ through ‘green infrastructure’ and ‘walkable-mixed use areas’ (SAPCC 2018, P. 130).

The policy responses also can be seen through these collocations, such as the emphasis on multi-hazard assessments and city-specific interventions to achieve “co-benefits (between climate action and existing development actions) approach is a win-win strategy aimed at capturing both development and climate benefits through its various initiatives” (SAPCC 2015, P.14). For example, the SAPCC 2018 also uses discursive knots to justify the co-benefits approach such as ‘climate-related budgets’ and ‘livelihood resilience’ that overlap social, economic and environmental discourses:

“Attempts have been made to mainstream many climate change issues in the development planning, but limited resources are available for many activities. However, a lot more can be done, provided climate-related budgets are available from any mechanism that can contribute

²⁰ Smart City Mission is a centrally driven mission in India launched in 2015, under which 100 cities in India were selected with the aim of improving core infrastructure and quality of life through technology-based interventions - digital modes of municipal services (e-governance) for citizens. Bhubaneswar city was selected in the first phase of twenty cities, and the official projects started in 2016. Smart Cities Mission intended to change particular areas within the selected cities (Area Based Developments) combined with some city-wide initiatives which were to be driven by the various technological intervention (IBI, 2015).

to sustainable development. Therefore, only highly relevant activities with strong environmental and livelihood resilience–related co-benefits have been identified.” – (SAPCC 2018, P. xix)

While the detailed analysis involved several discourse fragments, we present specific discourse fragments related to the positions within climate plans on climate change and informal urbanization (a dominant pattern in Bhubaneswar city).

For instance, the climate plan mentions the following fragments:

“Urban centres... .. are also facing the rapid growth of the slum population living in poor building types in environmentally vulnerable pockets. The fast growth of these urban centres leads in turn to the build-up of the surrounding areas, thereby encroaching on low-lying areas and increasing the flood risk. The encroachment of low-lying areas and the clogging of drainage due to the increase in solid waste in the city have led to unhygienic conditions and in turn a high incidence of water- and vector-borne diseases.” – (SAPCC 2018 P. 18)

This phenomenon was also revealed across several expert interviews who either jumped to provide prescriptive solutions to the ‘slum problem’ or used legal discourse to dismiss any discussion on the matter, reproducing the ‘slums as illegal’ narrative. A few excerpts from the interviews are shown below that corroborate the discourse position:

“What I feel is that slum dwellers can be rehabilitated in a good manner as we have done in Bhubaneswar. Many slum dwellers were sent to apartments, we unfroze the land, and the developer was given the land to build the high-end houses. That’s the way forward to deal with development and climate together” – state bureaucrat on prescriptive solutions

“There is no question of recognizing (the slums within formal plans/policies). They have been encroaching. They have to be regulated. Regulated means, through redevelopment or this PPP mode. The slum dwellers cannot be left as it is. They have to be brought into the formal mode of housing.” – Urban planner on the BDA’s perspective reinforcing the ‘slums as illegal, development risks).

Throughout the climate plans, slums as well as the slum dwellers (subjects) are objectified in various ways by profiling them through discursive knots such as geography (risky locations), economic (through class distinctions); by referring to them as ‘unhygienic’ (health risk), ‘encroachments’ (legal risk) residing in ‘poor building types’ (development risk), comprising of ‘construction workers’ (class-based distinction) who have ‘migrated from rural areas

(development risk²¹). The discursive knots of development, politics, economy, law, and environment has resulted in the creation of the slum as both a spatial, social, development, and climate risk in Bhubaneswar. The vulnerability portrayal is context-based, identified as vulnerability to events as with the previous discourse; as well as place-based vulnerability (arising out of spaces identified within plans/policies such as informal settlements, rental housing, drainage channels, etc.)

Discourses of intrinsic necessity

Under the third discourse, we identify climate risk to be located within specifically marginalized groups that are projected to need urgent attention and representation within governance. The risks are framed as emanating due to a lack of awareness and empowerment among both formal and informal actors, as well as historical power structures that perpetuate inequality. In the climate plans, these are identified in two areas –as mainstreaming of gender and ethnicity in climate issues; and the reduction of information deficit of existing city and state institutions concerning climate issues (improvement of organizational and capacity, cognitive and technological limitations). Although still within the overall development discourse, these ideas are from a position to make emancipatory changes in the existing institutions and specific groups (planning-as-activism from the state). Consequently, the vulnerability portrayals are more oriented toward context-based, framed as social groups' vulnerability due to institutional neglect. These changes within the climate plans are recent, only the 2018 SAPCC speaks of it, showcasing the evolution of the climate discourse in Bhubaneswar from techno-legal framing of climate to climate justice angles. The changes likely occurred in response to the growing public discourse in India (and abroad) around gender and indigenous groups' rights, to mainstream climate goals with the smart city goals, as well as to align with India's interests²² in the global discourse²³ in international

²¹ The SAPCC 2018 sees rural-to-urban migration as a development risk to the city, since migrant groups are expected to reside in informal settlements, making the climate objectives of the city more difficult to attain in the face of shock events.

²² Internationally, India argues for common but differentiated responsibilities (CBDR) as per principles enshrined in the UNFCCC (United Nations Framework Convention on Climate Change). India argues that being a developing country, it will invest on mitigation when there are possibilities for international donor agencies involved. The NAPCC and SAPCCs consequently attempt to focus on adaptation projects along with engineering driven mitigation projects (likely due to history of planning structures in states dominated by technocratic approaches and led by Chief Engineers).

²³ The 2015 United Nations Sustainable Development Goals or the SDG #5 and #10 specifically call for action for gender equality as well as reduced inequalities. Gender was also referenced several times in the Paris Agreement (Articles 4 to 11).

negotiations and commitments. We call this shift in discourse the *second moment of transformation* within the climate governance context in Bhubaneswar.

The SAPCC 2018 addresses the above by urgently claiming the following:

“It has been widely recognized that the climate change challenges cannot be tackled with half of the population. We need to have both men and women come together, joining hands to address this challenge (climate change).” – (SAPCC 2018, P. 160)

The plan is focused on “empowering women as agents of change and innovation and not to depict them only as victims of climate change”, and to “build the capacity of women and gender-focused community-based organizations” (SAPCC 2018, P. 160). This approach has experienced some relative early success. Empowering women led to a stronger capacity of Women Self Help Groups (SHGs), which were instrumental in carrying out disaster preparedness as well as post-disaster relief and recovery actions in several recent extreme events. An interviewee noted:

“Women SHGs are emerging as an empowered group and helping in creating self-discipline... And during cyclone Amphan they were also managing our catering (food supply) ... In cities, we are trying to activate urban SHGs.”

The climate plans also talk about the involvement of indigenous groups in climate initiatives, although seemingly hesitatingly, through the documentation of “indigenous technical knowledge in agriculture... . . . that are ‘supposed to be’ climate adaptive, and they have withstood climate shocks” (SAPCC 2018, P. 57). Further, the state departments, as well as communities, are also projected as having limitations in terms of their inability to make sense of current and future climate risks. This is interpreted from the various policy responses within the climate plans that advocate several awareness programs to sensitize communities about climate change, through capacity-building attempts (of technology such as weather stations and early warning systems, mitigation infrastructure, coastal vulnerability assessments, updating existing bylaws, increase staff capacity within departments, etc.). These developments were seen through discursive knots between development (institutional capacity), education (recognition of indigenous knowledge, and recognition of lack of awareness among actors), and politics (participation and representation of marginalized groups).

Table 9: Summary of the three discourses

Discourse	Position	Vulnerability portrayal	Risk/Governance objects	Policy/Planning responses
1	Discourses of inevitability Climate risks are linked with unavoidable natural events; society is a victim	[Vulnerability to specific events] Leans towards Outcome Vulnerability - strong use of biophysical frame - focus on future risks	Scenario models outputs Industrial output Disaster Resilient Infrastructure Multi-hazard mapping	Mitigation and adaptation (city-scaled and local-level interventions) Bylaw updating Risk Assessment and Communication State and municipal department action plan and budgeting.
2	Discourses of collocation Climate risks linked within communities; climate change and urban development have trade-offs in governance	[Place-based vulnerabilities] Aspects of Outcome and Contextual Vulnerability -acknowledges that climate vulnerability is influenced by changing biophysical conditions and existing urban politics. - Acknowledgement of local place-based issues on the city and regional scale.	GHG Emissions Urban warming/flooding City drainage network Slums (spatial object) Climate-Smart neighborhoods Low Impact Carbon Neutral Development	Hazard-specific mitigation and adaptation actions Co-benefits approach to balance mitigation/adaptation objectives and existing urban development objectives Slum redevelopment as adaptation Drainage management plan E-governance and mixed-use neighborhoods
3	Discourses of intrinsic necessity Climate risks emanate from knowledge deficit and historical structures of inequality and marginalization of social groups.	[People-based vulnerabilities] Contextual Vulnerability oriented - Acknowledgement of effects of historical power structures that have resisted participatory planning possibilities in practice. - Acknowledgement of information limitations on climate issues.	Indigenous Technical Knowledge (ITK) Gender mainstreaming (quantified variables) Risk monitoring	Documentation of indigenous knowledge Gender-inclusive frameworks within disaster response and recovery Increased participation and representation of women SHGs in climate initiatives Investment in new technologies, capacity building, and institutional awareness.

The framings and discursive knots have created ‘gender mainstreaming’, ‘indigenous knowledge, and ‘risk monitoring’ as governance objects, while new subjects also have arrived, in the form of women groups (although it remains unclear which identities within women the plan privileges), SHGs, indigenous groups – groups that were conspicuous by their absence in the earlier two discourses. While the climate plans/policies remain biased toward expert knowledge, through this discourse they aim to address historical structural inequalities that exist in Odisha/Bhubaneswar, although these are still more rhetorical, and can be judged post-facto in the coming years. Yet the new discourse helps resist the tendency of planning and governance to ignore gender and ethnicity issues. At the same time, the plans are silent on heterogeneity that exists within communities, and consequently, they can produce new risks (new power structures can arrive in the form of particularly privileged sub-groups within communities).

In totality, we contend that all three discourses discussed earlier in the paper may have existed together to different degrees at different times. Yet, the moments of transformation can be seen through the analysis which was inspired by a variety of factors including experience with multiple climate shock events (particularly cyclones, floods, and heat waves), the influence of international agencies such as the World Bank and UNDP, alignment with India’s international commitments in the international UNFCCC conferences, regime shift led policy shifts such as the Smart City Mission (a radical move for neoliberal designed and managed spaces), and local contextual needs and perception of climate as well as non-climate risks by municipal authorities.

3.7. Conclusion

This paper set out to understand how the process of discursive evolution and transformation of climate risk and vulnerability unfolded through climate plans/policies in Bhubaneswar. We identified two distinct moments of transformation that can be seen as an evolution of discourses on climate. We used CDA to interpretively construct three discourses on risk – discourses of inevitability, collocation, and intrinsic necessity – within the climate action plans and other allied documents. The discourses on risk are also closely coupled with particular ways of vulnerability interpretations and portrayals (vulnerability to disaster events, place-based or social groups). Based on our study, we argue that different conceptions of risk and vulnerability are co-constructed, co-exist, and ultimately affect how climate

strategies are formulated and practiced (also see Aragón-Durand, 2011 and Rebotier, 2012). Particular discursive knots around climate risk coevolve with systems of thinking around vulnerability, limiting or expanding governance responses to system/environment adaptation. The risk and governance objects and subjects that form from the discursive knots determine policy responses that are always context-dependent and can be only interpreted within the particular context of time, space, and socio-cultural contexts.

Bhubaneswar shows us that climate risk governance in practice suffers from a problem of incomplete observation of risk (risk as natural events), which has a significant bearing on its assessment and management. Consequently, multiple changes in the climate responses and strategies show positive intent to address the increasing climate risk, yet miss the point of addressing several contextual issues. Our observations are congruent with similar studies which point to gaps between rhetoric and action in environmental governance (Asayama & Ishii, 2017; Bhardwaj & Khosla, 2020; Bushell et al. 2017; Jogesh & Dubash, 2015; Pillai & Dubash, 2021).

We make several contributions to theory and practice. First, through this study, we built upon the emerging body of empirical work on EGT, by adding empirical insights from southern perspectives. We advanced the lesser traveled path of applying CDA by Jager & Maier (2009) to analyze and construct discourses within climate governance and planning in general. The analytical framework employed can be adapted to other themes and combined with other theories, methods, and techniques to arrive at a different result. We also highlight here that we did not address some of the power/knowledge dynamics that may be generated from this study itself. Our analysis was also largely limited to formal actors and institutions in this study, since we did not include informal actors/institutions for the interviews. Future work can focus on the combined co-evolutions of discourses of risk/vulnerability and social identities in governance evolution, and methodological advancements through more integration of formal/informal actors in discourse construction.

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Chapter 4: Understanding risk in climate governance: the importance of formal/informal institutional interactions. Insights from Bhubaneswar, India

Abstract

In this paper, we demonstrate the importance of grasping the interplay between formal and informal institutions for understanding risk in climate governance. Through an in-depth inquiry into Bhubaneswar city in India, the paper reconstructs how formal and informal actors strategize, interpret, adapt and transform themselves in the context of various emerging risks as well as development priorities of the city. The presence of informal actors and informal institutions can combine into self-organization which can be called informal governance, but this system is never entirely disconnected from the formal system. The interplay between formal and informal can take the character of conflict and confrontation, suspicious mutual observation and strategy, and selective use and enforcement of formal institutions such as policies, plans, and laws. We observed a clear difference between post- and pre-disaster interactions, with disasters paving the way for more collaborative relations (temporarily), based on formal/informal institutional combinations used by both formal and informal actors. Pre-disaster, when disaster management is still risk governance, is mired by suspicion of the local communities toward formal plans and actions, based on power relations often felt as unjust, and dominated (by the formal actors and institutions). In that phase of risk governance, one can distinguish between actual risk governance and the rhetoric of risk (which can be deployed for various reasons). Based on our findings, we argue that formal and informal institutional interactions are contingent and have context-based outcomes, and this brings us to the risks engendered by not observing the formal/informal interplay: existing risks, adaptations, and forms of risk governance are easily overlooked in the planning process, the connections between climate-related risk and other risks can be ignored, between risk and opportunity, between risk rhetoric and actual risk governance. Finally, we argue that the interplay of all these unobserved factors can create new risks, which are harder to anticipate because the simplified image of the governance system and its evolution does not picture the path-dependent interplay between the contributing factors.

Keywords: Risk, Vulnerability, Climate Governance, EGT, informality, social-ecological systems

4.1. Introduction

Climate risk governance in southern cities is a crucial and topical matter of inquiry in planning and governance studies. Recent scholarship has highlighted that social differentiation, ecological and environmental changes, as well as institutional power dynamics, maintain and perpetuate the vulnerability of communities and cities as a whole to climate change (Chhotray & Few, 2012; Mustafa et al., 2011; Singh & Basu, 2020; Singh, Deshpande, & Basu, 2017). The theory based on socio-ecological systems (SES) and resilience thinking-based perspectives on climate risk governance produced key insights into recent research. Recent versions of the above perspective highlighted the importance of several contextual factors such as formal and informal planning system/environment relations²⁴, specifications of risks (specific vs general), and combined effects of climatic and non-climatic risks on governance paths (Adger, 2000; Berkes et al., 2002; Diep et al., 2022; Fischer-Kowalski & Rotmans, 2009; Gray & Ocampo, 2018; Razzaghi-Asl, 2022; Soliman, 2021; Syal, 2019; Trundle, 2020). However, the core concepts of climate governance such as adaptation, vulnerability, and resilience in theory have thus far remained amorphous, unclear, and contested, both in terms of their constructed and interpreted meanings as well as their application to cities. At the same time, most planning and governance practices in cities including those in the South continue to devise strategies that frame the above as crucial end goals, sometimes with counterproductive results (Magnan et al., 2016; Collado, Wang, & Tsai, 2019; Schipper, 2020).

In this paper, we inquire about how formal and informal actors and institutions²⁵ interact with each other, and map their consequences on climate risk governance. We refer to a holistic framing of informality in this paper as interactions between formal/informal configurations that have a combined influence on governance systems, including the governance of climate change. Recent scholarship on informal settlements²⁶ in the global South has highlighted how

²⁴ Formal here refers to the select decisions around actors and institutions that are labelled so based on the coordination option within a governance context, and informal is outside of this sanction. However, the formal and informal systems are not imagined as stable, hence the boundaries are always seen as changing, i.e. informal actors may gain legitimacy and become formal, while older formal actors or institutions may become side-lined or ineffective, and become informal. In the context of Bhubaneswar, we link the legally sanctioned state actors and institutions with formality, and others with informality. System here refers to the city space as a social-ecological system.

²⁵ We refer to formal institutions as approved plans, policies, regulations and laws, while informal institutions as unwritten rules of coordination that various actors (both formal and informal) often follow in practice.

²⁶ In practice, informal settlements refer to unplanned settlements that exist outside the formal planning system. They are identified based on dominant characteristics such as areas with no tenure security; poor access to basic services (such as power supply, drinking water and sanitation); and non-compliant housing (UN-Habitat, 2015).

they demonstrate good self-organization capabilities, coping mechanisms, and active social structures that can be very effective in responding to climate change effects (Banerjee & Bhattacharya, 2019; Dovey et al. 2020; Nunbogu et al. 2018; Parthasarathy, 2015; Suhartini & Jones, 2020; Trundle, 2020; Williams et al. 2019). Despite the emergence of new evidence of their role in climate action at the local scale, formal planning actors and institutions often ignore the various institutional arrangements that already exist in informal settlements that contribute to resilient climate development in cities (Trundle, 2020).

We will argue that not recognizing the interplay between formal and informal institutions in climate risk governance engenders a whole array of risks whose existence and interplay become hard to anticipate and manage. It might be useful to point out, from the outset, that our understanding of informality is not restricted to informal settlements using informal institutions. In most settings, including the cases observed, all actors, also those in or close to the government, rely on a combination of formal and informal institutions for coordination. This basic insight is compatible with a different one, derived from critical environmental studies and governance studies broadly, that is, that any topic of governance is also a topic of rhetoric, and that this rhetoric can aim at what has formally declared a goal (say, nature conservation, or climate adaptation), but also at other goals (gaining power, self-enrichment, ideological politics). This immediately distinguishes climate risk rhetoric from actual climate risk governance, and which connects formal climate risk institutions not only to informal institutions in the same domain but potentially to informality in seemingly remote domains of governance (furthering public, elite, or private aims, see Roy, 2009).

Theoretically, we draw on the perspective on informality already adumbrated in the previous paragraphs, a perspective derived from anthropological, environmental, and policy studies of cities in the global South, but also in post-Soviet transition countries. We begin from the position that formal and informal relations relate in various ways which can benefit or undermine collective goals, while they can also represent competing claims over resources and competing images of the community. In the theoretical section, the origins and implications of this position will be presented, as well as a set of concepts from evolutionary governance theory (or EGT), a theory where formal/informal institutional configurations take a central place, and which has been applied to the study of self-organization, informal settlements, and informality in transitions. The central tenet of EGT is that *everything* in

governance is subjected to processes of co-evolution. Risk governance in this lens then immediately presents itself as structured by a web of co-evolutions which has to be reconstructed to understand why certain risks are observed in a particular governance system, others not, and where the reliance on particular sets of policy tools and informal institutions comes from.

The study is carried out in Bhubaneswar city, which in recent times has remained at the forefront of formal climate action in India. We specifically focus our attention on informal settlements in Bhubaneswar city, which house nearly one-fourth of the population of Bhubaneswar, yet are ignored within formal climate plans and policies. We employ two objectives in the paper. First, we investigate how formal and informal actors and institutions in Bhubaneswar coevolve, i.e. how they interact, interpret, and mutually adapt to each other's actions, plans, and strategies related to a wide range of climate and non-climatic risks. Secondly, we draw attention to the broad implications of these effects of formal/informal interactions on climate risk governance that can provide theoretical perspectives on climate governance and useful ideas for practice in southern cities contexts.

We conduct the inquiry through a qualitative case study approach, analyzing plans and actions of formal as well as informal actors and institutions in Bhubaneswar city in India, which has been at the forefront of many climate changes and urban development initiatives in the recent past. We specifically focus on actors/institutions that are formally recognized such as Bhubaneswar Development Authority, Bhubaneswar Municipal Corporation, climate plans, and policies, etc.; as well as informally present such as slum dwellers committees, slum, and climate activists, local NGOs, and various residents of slums.

In the rest of the article, we shall elaborate on several aspects of the study. In the next section, we describe the study context, case selected, and methods used for data collection and analysis. This is followed by a brief introduction of literature sources as well as the theoretical and conceptual frames employed in the study in Sections 3 and 4. This is followed in Section 5 which showcases the main findings from the case, and a discussion of the same in light of theory and practice. We conclude the paper in Section 6 through a brief discussion on the contributions of the study, limitations, and future directions.

4.2. Study context and method

Background and study area

We conducted fieldwork in three slum settlements within Bhubaneswar city, where the city planning institutions are focused on redevelopment through resettlement. Bhubaneswar city in Odisha state is located near the Bay of Bengal coast which is identified as one of the hotspots of changing climate (IPCC, 2007). The city has experienced major effects of climate change in recent times (changing rainfall patterns, and a sharp increase in the intensity and frequency of extreme events). In response, the formal governance system has shown remarkable institutional response (policy changes, new organizations, more organizational and media awareness, and faster response and recovery) to the same fast changes in governance paths.

Bhubaneswar city is the capital of Odisha state in India. The city has an area of 135 sq. km., and a population of 0.84 million in 2011; with a decadal growth rate of 27.74 percent (Govt. of India, 2011). It is the largest city in the state and assumed importance as an administration and tourism hub in the region. The relevant formal actors in Bhubaneswar city are BDA (Bhubaneswar Development Authority), which is a parastatal agency responsible for the preparation and implementation of long-range and annual plans, and BMC (Bhubaneswar Municipal Corporation) which is the urban local body of the city responsible for the implementation of plans and delivery of services and utilities, Odisha State Climate Change Cell (a recent organization responsible for managing decisions related to climate risk and action), OSDMA (Odisha State Disaster Management Authority), Ministry of Environment and Forests, Govt. of Odisha, and SPCB (State Pollution Control Body). The non-state actors relevant to this study are NGOs, activists, slum committee leaders, and slum residents in the city.

The State Climate Change Cell is the main coordinating organization for planning and policy-making, and the BMC is at the forefront in terms of execution and services (Government of Odisha, 2018). The Climate Cell prepares and updates the Odisha State Climate Action Plan²⁷ (SAPCC) within the broader framework of the National Action Plan for Climate Change

²⁷ The most recent updated plan is the State Climate Action Plan 2018-23, which is the third update after previous versions were released by the state in 2010 and 2015. The Action Plan, also known as State Action Plan for Climate Change (SAPCC) is central to any climate based action in the city of Bhubaneswar.

(NAPCC)²⁸, which is the main institution that allows coordination between various actors for climate action. Other rules of coordination of relevance in this study are the Bhubaneswar city Master Plan 2011, Smart City Proposal 2015, various technical reports produced by local and international consultants to the state government, and relevant legislative acts such as the Land Rights to Slum Dwellers Act 2017 that specify rules related to land tenure allocation to slum dwellers (IBI, 2015; UNDP, 2014; World Bank, 2017). We shall refer to these actors and institutions in further detail in later sections of the paper.

Data collection and analysis

We relied on semi-structured interviews, document analysis, direct observation, and field notes for data collection. The primary fieldwork was conducted between May 2020 and January 2022. Owing to the restrictions around the ongoing Covid-19 pandemic, the interviews were conducted online and in person based on the dynamic restrictions around travel at different times. In total, 28 semi-structured interviews were conducted upon recruitment through purposive sampling— 9 state actors (state department secretaries, government-appointed scientists, municipal planners, and engineers), 16 non-state actors (including 3 activists and 13 slum committee members), and 3 academic experts. We identified several slum committee leaders and activists based on an initial scan of media articles as well as information gathered from initial interviews. After initial contact and visits to five settlements, residents and slum committee leaders within three slums (viz. Shantipally, Pandakudia, and Trinath basti²⁹) agreed to take part in the study and were interviewed in further detail. The interview questions were descriptive questions about a general experience in the city, their relationship with the formal actors (and vice versa) and institutions, their experience with recent extreme events such as disasters, and their perspective on the ongoing slum redevelopment projects, gradually moving towards probing questions to decipher the implicit assumptions, interpretations, and judgment of the participants regarding local climate and non-climatic risks, vulnerabilities, collective goals, and imagined futures. We also drew data from existing plans for climate change, media reports, smart city plans, masterplan documents, and consultative reports by state departments in Bhubaneswar city.

²⁸ The NAPCC is a national level action plan launched by the Government of India in 2008, with the objective of balancing between fulfilment of India's development objectives and reducing the emissions impact of its growing economy. Consequently, since 2009, various states began launching their own state level action plans within the broader framework provided by the NAPCC.

²⁹ Basti – local word for slums

We transcribed all interviews and coded them for descriptive and thematic codes using NVIVO³⁰ software, following which we mapped the main emerging themes through descriptive and thematic coding. We scanned through the relevant documents to make interpretive observations and connections between interviews and documents concerning the study objectives. The codes were both inductive and deductive, based on existing literature as well as the interview text. The codes (for example self-organization strategies) were often divided into sub-codes (such as land tenure negotiation, legal challenges, active collaborations, protests, slum committee formation, etc.) and then eventually categorized (such as formal actions within informal settlements) and arranged based on themes relevant to the research question. For particular events and the reliability of general findings, we relied on triangulation between interviews, documents, and memos based on informal discussions in the field (Maxwell, 2013).

4.3. Theoretical framework: informality and evolving governance

Within much of the planning and governance literature, informality has been considered to be at best outside the scope of formal plans and planning processes, and at worst phenomenon that results in unwanted urbanization patterns that undermine formal institutions in the city (Innes, Connick, & Booher, 2007; McFarlane, 2012; Roy, 2005; Van Assche et al., 2012). The most dominant understanding of informality is the illegal occupation of land for housing by marginalized people (Hernandez, Coulter, & Melis, 2020). Informality is usually observed through the order/disorder lens, thus often understood through a binary lens, as chaotic, irrational, and a challenge to formal planning and governance (Assche, Beunen, & Duineveld, 2013; Kundu, 2019; Pathak & Mahadevia, 2018; Tonkiss, 2012); as an alternate organizing logic (Appadurai, 2001; Bhan, 2009, 2013, 2019; Correa, 1988; Roy, 2009, 2012; Roy & Alsayyad, 2004; Watson, 2009) or simply, “a way of life” and part of the general culture of urbanization (Alsayyad, 2004).

Recent works have however critiqued this rigid framing of informality by highlighting that informal rules and roles within informal settlements form and transform within an existing institutional and governance context, and adapt to formal planning and land use policies

³⁰ NVIVO is a qualitative data analysis software that helps analyse non-numerical and unstructured data from interviews and documents. The interviews conducted in this study resulted in large body of textual data which was then organized within NVIVO to arrive at insights related to the study objectives.

(Dovey et al., 2020; Suhartini & Jones, 2020; Banks, Lombard, & Mitlin, 2020). Roy, (2009b) described informality as an “ever-shifting relationship between what is legal and illegal or authorized and unauthorized”. Seeing this way, informality is no more binary, but has combined effects with the formal, by complementing, accommodating, competing, and substituting it (Helmke & Levitsky, 2004). Framing informality as the dynamic co-evolution of formal and informal systems refers to ways in which both systems and discourses on the formal and informal constantly interact, shape the boundaries, evolve, and transform each other (van Dijk & Beunen, 2009; Watson, 2003, 2006; Berrisford, 2011; Van Assche et al., 2012; Assche et al., 2013; Schindler, 2014, 2017).

We build our study based on agreement on this non-binary and evolutionist framing of formal/informal systems within socio-ecological systems that are constantly adapting to changing environments (due to climate change). Seeing this way also leads us to think that boundaries between formal and informal systems are constantly blurring. Formal and informal is a matter of interpretation. Informality is thus in flux, very fluidic, always existent, and operating between cracks and gaps within the formal planning system (Czarniawska 2008; Perera, 2009). All formal systems have context-specific limitations, and hence must follow informal norms and tacit rules, while informal systems maintain many formal rules that are relevant within the system (Beunen et al., 2015).

The above insights into the various effects and functions of informality can be traced in anthropology, environmental studies, studies of political transition, and economics, and moving into the ‘ordering’ field of public policy, administration, and spatial planning. The experience of post- Soviet transition, with informal institutions, both creating problems and supporting the basic functioning of administration and elementary safeguarding of public goods, reinforced the idea that what needs to be assessed is the context-specific configuration of formal and informal institutions; also help ask a question such as: do they produce a public good, allow for participation and self- transformation, maintain differentiation in society? (Aliyev, 2017; Hayoz, 2015; Polese, 2016). The post-Soviet experience as well as the post-colonial experience in many southern places furthermore advanced the idea that institutional choices, forms of organization, and power/knowledge relations, occurring a long time ago could still have profound effects on the quality of formal governance in the present, on the relations between formal and informal institutions and on the possibilities for reform (Bhan, 2009; Asher Ghertner, 2010; Huxley, 2017; Mielke, 2022; Shatkin, 2004).

In this study, we develop a specific framing of informality and the relation between formal and informal institutions within evolutionary governance theory (EGT), a framing that is sensitive to historical legacies and power relations. For EGT, governance configurations are contingent and unique to particular communities. Within a governance context, “nothing is stable, and everything changes together” (Assche et al., 2015, 2017; Beunen et al., 2015). Actors and institutions mutually shape each other and co-evolve with each other, while on the institutional side, formal and informal institutions co-evolve. This means, that the effects of new actors and their strategies can be felt throughout the governance configuration, and can have implications for the use of formal and informal institutions. Various forms of knowledge (expert knowledge, narratives, local knowledge) are present in a configuration, but each configuration, conditioned by its evolution, has certain forms of knowledge more entrenched than others (encoded in institutions, embraced by actors), and is selectively open for new knowledge. For that reason, EGT incorporated the Foucauldian concept of power/knowledge, entailing, in our case, that new discourses on climate change, risk, but also development can trigger changes in the whole governance configuration, and affect power relations by creating new institutions, triggering strategic uses of the new rhetoric, recasting informal institutions as ‘climate adaptive’ or not, creating new actor coalitions and possibly new futures.

In the EGT lens, all systems are adaptive to their environment, while the system/environment relationship is always unstable and evolving (Assche et al., 2017; Beunen et al., 2015; Djanibekov & Valentinov, 2015; Hillier, 2015; Luhmann, 1993, 1995). Adaptation is always there, but also always partial since one set of adaptive actions can only address some environmental risks while ignoring other risks, or even creating new risks and opportunities (cf already Luhmann, 1989) and because risk constructions and responses are constructs of the *system* (in this case SES), marked by its limitations and contingencies. Adaptation can be formal or informal. Formal adaptation can often come from formal climate change policies and plans, but also other institutions (plans, rules, and laws), such as master plans and changes in the legal or political system. Risks are created discursively within a particular context and pose limitations to the recognition of local knowledge that exists outside of the formal institutions (Innis & Van Assche, 2022; Neisser, 2014). Formal policies on adaptation and resilience are thus prone to failing to recognize various local risks and vulnerabilities that may be partially addressed through informal coordination (Bouwmeester & Hartmann, 2021; Finn & Cobbinah, 2022; Fox-Rogers & Murphy, 2013).

4.4. Informality in Climate Governance

Formal/informal systems in climate governance scholarship

The links between climate change and informality are complex, due to the possibilities of multiple configurations of actors and institutions to fight and negotiate for resources, legitimacy, and networks (Lara-Hernandez et al., 2020). Scholarship using a climate justice framework has highlighted that the climate vulnerability of marginalized communities in urban areas in the southern context is driven and perpetuated by both climatic and non-climatic risks (Chu & Michael, 2019; Desai, Mahadevia, & Sanghvi, 2020; Pathak & Mahadevia, 2018; Singh et al., 2017; Trundle, 2020). Others have highlighted that the existing planning and governance systems in many southern cities are at best incapable or underprepared, and at worse discriminatory and maladaptive, since they either fail at providing basic services to communities; or actively ignore the various drivers of the vulnerability of marginalized communities within informal settlements (Chu, Anguelovski, & Carmin, 2015; Chu & Michael, 2019; Pathak & Mahadevia, 2018; Shatkin, 2004, 2014; Shatkin & Soemarwi, 2021; Singh & Basu, 2020).

We can distinguish two scholarly traditions relevant to our endeavor: work on *climate change adaptation and informality*, and work on *risk governance and informality*. Both can help to extend the theoretical frame towards our precise topic and case research and provide insight into the role of informality in the governance of climate-related risk. This is all the more the case because these two lines of investigation tend to use the global south, its informal settlements, and informal institutions, as a field of observation. Agrawal & Perrin (2009) stated “If adaptation is local, attention to local institutions is critically important in the design of adaptation projects and policies”. This seems trivial but has been systematically overlooked in both risk governance and climate adaptation policies and research, which are still, as we noted in our introduction, dominated by modernist thinking, big models, big plans, and big steering administration. Informality then becomes a problem again, and, more often, remains unobserved.

Agrawal & Perrin (2009) focused on often invisible coping mechanisms with existing threats, which could be aggravated by new climate-related threats and blunt policy responses to them. Sharma, Brahmabhatt, & Panchal (2022) add nuance to the sometimes prevalent glorification

of local, informal adaptations, highlighting that they are not necessarily always inclusive and effective and might undermine checks and balances at higher levels of governance, echoing our previous argument to focus not on formal or informal but the character of their interplay. Shatkin & Soemarwi (2021) dealing with flood risk in Indonesia, similarly speak of a dialectic of informality, where state actors, pursuing a supposed public good (safety, development) dispossess many already marginal communities and trample their formal rights. Ziervogel et al. (2016) conclude that flood risk governance cannot be simply improved by promoting ‘collaboration’, without understanding the relation of underprivileged communities to the law, without understanding underlying histories of problematic power relations and weak representation. Meagher (2021) similarly analyzes informality as possessing both inclusive and exclusive properties, depending on contingent histories of governance, making a reform deeply dependent on a thorough analysis of formal/informal relations.

All of the above findings resonate with the basic insights of EGT, and with the EGT-inspired analysis of informal risk governance by Legese et al. (2018). Based on an extensive literature review of the risk governance literature, and empirical work in Ethiopia, they diagnose that fragmentary and unpredictable governance often forces informal governance configurations into being where observation, assessment, and management of risk differs significantly from what counts as risk and its appropriate response in the formal system. Legese et al. (2018) furthermore show that the labeling of the risk (e.g. climate-related) is much less important than the perception of risk, and the relation to opportunities which might also not be observed in the formal system of governance. In line with Meagher (2021) and Hayoz (2015) one can surmise that histories of non-representation in the formal system create informalities that can either increase or decrease risk, and which, if unobserved, make it hard to formally move governance in *any* direction. After all the above considerations, reflecting on the literature, and building our theoretical frame, we will delve into the particulars of the case of Bhubaneswar in the next section.

4.5. Findings and discussion

In this section, we present our interpretive findings from the case. We will present the mapping of formal and informal actions along with their mutual interactions which range from collaborative to conflict-ridden. We will present instances where formal and informal

actors mutually strategized concerning each other's actions to create new actor/institution configurations. Finally, we will reflect on the effects of these interactions and mutual strategizing on the risk governance context and its evolution, especially around particular extreme events such as disasters.

Formal/informal actions and mutual interactions

Our interviews of both formal and informal actors in Bhubaneswar revealed that both the formal and informal actors engaged in multiple interactions that led to configurations that can be characterized as *conflict and confrontation, suspicious mutual observation and strategizing, and selective use of enforcement of formal institutions*. The formal actions prescribed in the climate plan and policies in Bhubaneswar city include improving basic services accessibility in informal settlements such as sanitation, drinking water supply, and power supply; upgradation of slums through rehabilitation and resettlement; and rescue and relief during and after a disaster and other climate-induced events such as flash floods, cyclones, and heatwaves. The climate action plans and policies recognize and emphasize that informal settlements are highly vulnerable to increasing climate shocks. Consequently, the policy and planning response has been dually focused - on providing affordable housing to all slum dwellers; and improving community resilience by providing training to leaders within slums, including Women Self-Help Groups (SHG). This approach has had mixed effects. A senior official in the Odisha State Disaster Management Authority (OSDMA) described that the formal actors often relied upon the help of SHGs within the slums, who “played a key role during the relief and recovery process during cyclone Fani”. Other forms of coordination exist based on calculated informality by formal actors (we borrow the term from Mielke 2022). For example, the formal actors and institutions do not formally recognize the legitimacy of slum dwellers and their internally elected slum committees, yet during disaster events, they rely on coordination and active cooperation from these slum committees for successful disaster preparedness.

While the awareness initiatives have been useful, not all coordination worked well, however, and this has resulted in confrontation and conflict between the slum resident groups and formal actors. This is particularly true in matters of housing and eviction dynamics, which have historically remained crucial points of conflict between the state and slum communities. While the official climate action plans declare the provision of affordable housing as one of the main adaptation actions in urban areas, this is guided by tendencies to formalize the

informal settlements through evictions and resettlement, as observed in the local development. Discussions around eviction dynamics were naturally the focus of discussion with the majority of the participants when probed on the topic of informality. Interviews revealed the ongoing suspicion among slum dwellers of the recent formal institutional arrangements by BDA and BMC, especially the Smart City proposal and climate action plans. A history of mistrust between the formal and informal and differential power relations in planning matters meant new formal proposals are always seen by the slum residents as potentially oppressive and unjust.

To achieve their objective of formalizing the informal settlements, formal actors in Bhubaneswar often engage in using the formal institutions selectively, by bending officially approved procedures. The current eviction policy of the BDA and BMC is ad-hoc at best, and discriminatory at worst. A senior official within BDA when asked about the eviction criteria and policies, described how local politics loom over eviction decisions. The BDA was accused by several interviewees (slum committee leaders and residents) of evicting slums without any room for negotiations where residents are “supporters of BJP (Bharatiya Janta Party, the main opposition party in the state of Odisha)” while at the same time opting for relocation and alternate land acquisition for supporters of the ruling party. Although these are accusatory claims by a few interviewees, the stories shed light on the possibility of bias in state action based on the perceived political support among residents. Since the ruling party (Biju Janata Dal or the BJD) has been ruling in Odisha since 2000, it is difficult to ascertain if a pattern could emerge regarding state action across governments.

Interviewees also revealed that a lot of decision-making regarding relocation and evictions was taken by the officers on the ground without following any consistent rules. This is often done strategically to avoid getting into legal tussles or unexpected violence. An official within the Enforcement Division in BDA described this as follows:

“Usually, we begin by giving verbal notice to the people. There is no paperwork, so they (slum dwellers) cannot go to court using our notice. Still, they go and plea..., and usually can get a stay order for a while. The government can still follow up and evict them with force.”

In the absence of clear procedures for eviction and allocation of alternate housing and livelihood support, the decisions on the ground are often not based on rationality but examples of power exerting itself. Here the arbitrary exercise of power, based on personal judgments and whims of the local enforcement officials can be seen as more in the absence of

rational arguments and documentation of the process than in the actual documentation produced.

The arbitrary nature of the eviction process (based on the whims of officers on the ground, informally sanctioned by the formal institutions) is further complicated by corrupt practices by formal and informal actors who can exercise power. An example of this is an informal actor group that is former elected municipal Corporators of the current ruling party who are now no more in formal power³¹, yet continue to have local support and influence on decisions around relocations and evictions. Another example of corrupt practices is the unofficial overlooking of eligibility criteria based on which housing allotment in slum relocation projects were done in the past decade. A media scan of these allotment events revealed that many formal actors allegedly engaged in patronage and corrupt housing allotment by allotting houses to underserved applicants without proper documentation, which resulted in a pending court case³².

In response to skewed power relations against them and the ongoing suspicion of new formal institutions, the slum dwellers themselves have evolved several self-organization strategies to coordinate orderly decision-making within their communities, while addressing many internal vulnerabilities and creating spaces for adaptation to climate risks. Two of these strategies are relevant to this study, viz. formulation of *slum committees* beyond the usual SHGs; and collaborative procedures with activists to respond to eviction threats. Several slums in Bhubaneswar city have elected slum communities with its members changing hands regularly. These committees are not recognized officially by the municipal or state government, yet coordinate through unwritten formal decisions within slums, thus playing an important role in strengthening social resilience as well as providing space for informal adaptation in the city. Several slum residents and committee leaders who were interviewed for this study reflected on their importance during post-disaster recovery after cyclone Fani in 2019, wherein collective financial emergency funds within the community helped address the livelihood vulnerabilities of residents after the cyclone, through emergency loans.

³¹ The Municipal elections in Bhubaneswar were not held since the previous terms expired in February 2019, owing to pending court cases regarding seat allotments as well as the Covid-19 pandemic. In the absence, the previously elected Corporators (local neighbourhood level elected representatives) became informal actors and yet were not formally replaced till April 2022 when the new elections were held. At the time of field work and discussion with interviewees, these actors remained informal and are presented as such in the paper.

³² At the time of writing this paper, several such cases are sub judice.

Informal actors use rational means to resist the dominance arising from existing power relations. This brings us to the second form of self-organization is the recently developing active coordination between slum committee members and local activists, which has helped the communities challenge eviction legally in the Courts (use of rationality against power, as described by Flyvbjerg, 1998). Most often the challenge begins with a Right to Information (RTI)³³ application and sometimes leads to a request for a stay order in court. These approaches are often community funded and are aimed to frustrate the formal system by resisting evictions, causing delays, and creating better negotiation possibilities for land or housing tenure through the intervention of the legal system in land use and housing matters. The activists and NGOs in other times also help the slum committees by negotiating on their behalf with the BDA and BMC, organizing large-scale protests involving multiple slum residents as well as mediating with the police.

Mutual strategies

The formal and informal actors continuously interpret each other's actions and motives and attempt to strategically adapt to those interpretations. In doing so, they lead to evolved formal/informal configurations, including evolved conflicts around the interpretation of risks and vulnerabilities, especially related to evictions. Policies aiming at climate adaptation are in constant interplay with other policies, plans, and rules. Various formal policies combine to identify, observe and create strategy and capacity to address risks, while at the same time remaining committed to the actual overarching formal goals of smart growth and development-first approaches. The formal actors in Bhubaneswar attempted to balance the state climate goals with local development decisions around land acquisition for the Smart City Mission and slum redevelopment projects for a slum-free city. In doing so, they pushed for affordable housing³⁴ through several development models including slum relocation or clearance as a risk management strategy, and listed it as an adaptation action in the formal plans. At the same time, many of the details were ambiguous, leading to many interpretations, use, and abuse at the local level. While the formal actors saw the imperfect policy

³³ The Right to Information Act, 2005 in India mandates timely response by state officials to citizen queries and requests related to government information. The Act was brought to empower citizens and promote accountability and transparency in the governance process at all levels (central, state and urban/rural bodies).

³⁴ The Government of Odisha refers to affordable housing (based on the Policy for Housing for All in urban areas) as dwelling units constructed for Economically Weaker Section and Lower Income Groups in the state. The focus of affordable housing projects is to upgrade existing slums, rehabilitate them as well as create rental housing for migrant population groups in cities (Govt. of Odisha, 2015).

prescriptions as an opportunity to achieve the development goals through informal negotiations and evictions, the slum committees on the other hand interpreted these actions as a livelihood threat, and also an opportunity to negotiate for land tenure.

The slum communities on their part have adapted to the new plans and policies, through more self-organization, reliance on local knowledge of risks, locally existing adaptation, the effectiveness of slum committees, and the emergence of new slum leaders. The committees with the help of activists anticipate the moves of BDA and BMC, to come up with strategic-accommodative responses. These responses range from cooperation in the form of evacuation and rescue, post-disaster recovery actions, and resistance through organized protests and resistance, creating formal internal procedures for committee formations, negotiation strategies, legal actions, and sometimes violent protests. In response, the BDA and BMC have adapted by being more responsive in their updated plans and policies. For example, the state government in Odisha in the year 2017 introduced a new legislation, viz. The Land Rights for Slum Dwellers Act, of 2017 that guaranteed land tenure to all slum dwellers in the state to achieve its objective of slum-free cities (in line with neoliberal planning initiatives that rely on strong property rights). While the consequences of the legislative change are yet to be observed, it remains to be seen how it will impact the existing conflict around land and housing. Yet, the recent developments of self-organization³⁵ within slums and mutual strategizing can be seen in terms of changing power relations within the governance system, with slum communities having more space to negotiate using rationality (using legal persuasion against power) as well as exploiting the existing blind spots within the formal system through informal governance. The seeming permanence of antagonistic confrontations between the formal and informal meant that the existing power relations are never stable. This undermines the power or rationality itself (that is used by the slum residents to counter the effects of power) since the unwritten rules and lack of proper documentation around evictions provide formal actors safety from unwanted court rulings.

Formal/informal configurations and power

³⁵ The self-organization initiatives within slums goes back to early 2000s, with the formation of registered NGOs such as the Basti Sangharsh Samiti and Odisha Soochana Adhikar Abhijan that were formed to advocate for the rights of street vendors, domestic workers and auto rickshaw drivers. However, the acute increase in evictions since 2015 has resulted in these organizations to focus on slum housing rights, with the main demand being for land rights.

Despite the risk rhetoric deployed within the climate action plans based on rationality (scientific modeling, vulnerability assessments, and risk mapping are a few examples), the implementation of these plans is through strategies of power, exercised through flexible interpretations and overlooking of particular forms of risk knowledge while privileging others. Many of the responses by informal actors to the formal policies have useful overlaps with what would count as vulnerability reduction and adaptation strategies (such as raising plinths, local-level financial organization, knowledge of flood-prone areas, etc.), especially during extreme events. Yet, local knowledge of risk continues to be excluded intentionally or unintentionally in the formal plans and policies, making governance paths more rigid, creating complicated path dependencies making future evolution messy, and creating unwanted investment lock-ins through modernist fantasies (such as the smart cities initiative). A slum committee member described how their local knowledge of flood risk areas helped them take an informed decision during negotiations around evictions:

“Initially the BDA officials were putting pressure on us to relocate towards the other side (gesturing) near the railway line. We know these areas are always waterlogged during monsoon. So we did not agree to move there. After the floods in 2018, the same officials said to us, ‘good that you did not shift, otherwise all your houses would have been washed away’. The whole railway line area was flooded badly.”

The formal plans in Bhubaneswar also ignore the socio-political and historical contexts within which they operate. When plans tend to ignore previous and ongoing conflicts between the informal and formal systems, it makes negotiation and participatory planning models difficult in the future. Formal plans thus reinforce existing power relations and forms of knowledge and discourses on risk and vulnerability. The 2011 master plan for Bhubaneswar consciously forgets to recognize slum settlements that are regularized by the BMC, while actively surveying and mapping their locations for redevelopment projects within the Smart City Plans and Climate Action Plans. The strategic calculations around informality are used and abused by actors to take arbitrary land use decisions within the city while ignoring material contexts within which the informal settlements survive. These land use decisions (converting low-land areas into residential use without risk assessments) are often not backed by rational judgments or argumentation but are blunt examples of power exerting itself. For instance, in 2018, the BDA evicted and relocated several slums from the center of the city to the outskirts of flood-prone lands without considering the impacts of these decisions on the vulnerability of the evicted communities to various risks. The residents

of many slums that were evicted away from their existing locations lost the locational advantage within the city, which gave them access to easier public transit, city infrastructure, health care, and education, saying “how can we send our kids to school when we can barely survive?”. Other residents who were interviewed complained that they were forced to drop their children out of school due to the lack of access to public transit that existed earlier. An interviewee described her experience around cyclone Fani:

“Before cyclone Fani, there was cyclone Titli, just one month after we came here. That hurt us badly. This area they have allotted us is lowland. When it rains, there is always waterlogging. The water flows downstream here from the jungle. When it flooded, it washed away many of the walls that we had merely built.”

As the community was in the rebuilding process post-eviction, they were hit by two cyclones within eight months, first by cyclone Titli in October 2018 and cyclone Fani in May 2019. These extreme events resulted in flooding in these slums as well as cascaded into other crises including the destruction of housing, further financial troubles, and reduced health and education of residents.

The formal/informal interactions around evictions have resulted in creating path and material dependencies in the governance system. Potential adaptation actions involving the informal sector thus can have serious blind spots towards livelihood and social networks that make adaptation possible in the first place. Radical changes in material and path dependencies can be maladaptive and create a culture of mistrust. Successful evictions do not necessarily reduce risks and vulnerability. Blunt decisions based on power by formal actors in turn reduce space for rationality and make the existing risk rhetoric in plans meaningless. All of the above observations affect the stability of governance systems contributing to unstable power relations, unstable institutions, and risk objects, making the governance context and paths complex and unpredictable, and also making it difficult for the slum communities to use rational means to counter the risks emanating from the formal institutions.

Implications for risk governance

The study findings broadly highlight how climate change is enabling new forms of urban governance, and formal/informal configurations which have mixed systemic effects in Bhubaneswar, by enabling local responses and adaptation, while also giving rise to new

forms of vulnerability within informal settlements (see similar observations by Luque, Edwards, & Lalande, 2013). Extreme events become disasters in the presence of pre-existing social vulnerabilities, which are often attributed to unplanned development, poor labor processes, lack of formal employment, and poor basic services accessibility (Ajibade & McBean, 2014; Banerjee & Bhattacharya, 2019; Richmond, Myers, & Namuli, 2018). We further add that imperfect plans, formal/informal confrontations, power/knowledge dynamics, as well as the use of flexible, selective enforcement of formal institutions (through power) altogether, contribute to social and climate vulnerabilities (Flyvbjerg, 1998).

The case of Bhubaneswar brings to light the role of interdependencies between formal and informal institutions in climate risk governance. Formal actors rely on informal institutions to achieve overall goals of risk management and adaptation, while informal actors rely on formal institutions to address local risks. Both formal and informal actors and institutions are constantly adapting and transforming to each other to reduce multiple and overlapping risks (Van Assche et al., 2012). Yet, as observed in the present case, the formal/informal configurations in the current state are unable to address the combined effects of overlapping climatic and non-climatic risks (Sharma et al., 2022).

Seemingly rational risk management and adaptation actions to particular risks have blind spots and create new unintended risks that are often difficult to anticipate, observe and govern. In the present case, the formal risk rhetoric specifies the existing location of slums as flood-prone and vulnerable to multiple overlapping risks, yet the actions that follow themselves engender new risks that are not foreseen or imagined. The climate risks combined with eviction dynamics can amplify many non-climatic risks including livelihood risks (loss of assets, old networks, jobs, access to physical and social infrastructure), and health risks (drinking water issues due to flooding). At the same time, these interactions have productive power, since they create new opportunities as well, in the form of reduced vagueness around property rights of the slum communities, and opened new doors for informal actors such as activists and slum community leaders, improved access to basic needs during disasters through local level coordination.

The disaster events that were experienced by actors in Bhubaneswar in 2018 (floods and cyclone Titli) and 2019 (cyclone Fani) had a considerable impact on the material landscape of the city. Based on the interviews where participants recounted their experiences before and after these events, we observed a clear difference between pre and post-disaster interactions

between the formal and informal actors. The climate discourse is not explicit in the pre-disaster period; this period is the period of risk governance. In this phase, we see risk rhetoric around slums in plans being deployed to adopt not just adaptation, but to fit within other planning and development agendas of the formal actors. Power relations are more starkly visible, antagonistic confrontations are more easily visible in practice. On the other hand, in the post-disaster phase, where post-disaster recovery and rehabilitation are the main focus of all actors, there are temporary collaborations and recognition of local knowledge to manage risk. Once the disaster relief and recovery phase are over, we could see new narratives around evictions (slum dwellers recounted how they were aware of the place-based risks). Consequently, other elements of governance, including the power relations between the formal and informal actors were reshaped in the aftermath of the disasters, seen through the acknowledgment of the formal actors that their previous decisions regarding relocating the communities were irrational (although informally).

Formal planning institutions in Bhubaneswar often tend to ignore the role of formal/informal relations and self-organization that are characterized by informal settlements. As a result, they fail to notice the existing local and informal adaptations to actual risks from the environment. Not observing the formal/informal interplay engenders new risks and vulnerabilities. This can be linked with the theoretical blindness that the resilience and SES-based approaches in climate plans have. In the present case, new risks emerged from failure to recognize the connections between climatic and non-climatic risks are ignored, between risks and the opportunities that come with them, and the difference between risk rhetoric in formal plans and actual risk governance practices in the city. As a result, we see more uncertainty in the governance system (unpredictability, making it harder for actors to anticipate other's action leading to more mistrust), and an oversimplification of the governance system that risks failure of formal plans altogether or at least make them ineffective. Consequently, it becomes difficult to create context-based plans, stable institutions, long-term adaptation strategies, trust between communities and formal governmental actors, and to recognize and scale up local knowledge-based actions, all of which are general goals of resilience-based plans/policies. In this sense, plans based on SES theory and resilience approaches, both in theory and practice can generally benefit from an acknowledgment of formal/informal institutional interactions and co-evolutions that have a significant impact on practice and can be observed through an EGT framework.

4.6. Conclusion

In this paper, we set out to understand the role of formal/informal institutional interactions in climate risk governance. We used an evolutionary lens to understand how formal and informal actors and institutions are interdependent, constantly interact in a myriad of ways, mutually adapt to each other, and evolve into new configurations over time. The findings demonstrated that formal and informal institutions often interpret, assess, and respond to risks emanating from within the system as well as climate risks arising from the external environment. Further, climate risk often combines with eviction dynamics to amplify other non-climatic risks while creating opportunities for adaptations based on local-level coordination of informal and formal actors, as well as the use of local risk knowledge. Informality exists both within the various imperfections of formal plans and policies which remain blind towards self-organization within the informal settlements, and their value in governance. Informal urbanization by itself does not shape slum dwellers' vulnerability, but poor land-use decisions and partial observation of risks and vulnerabilities by formal institutions can be counter-productive (can create maladaptation in the long run (as observed by Banerjee & Bhattacharya, 2019; Finn & Cobbinah, 2022; Fox-Rogers & Murphy, 2013; Schipper, 2020)).

How formal/informal interactions develop, and their localized impacts on governance paths and contexts are always contingent and context-dependent. Based on our findings, we emphasize how both formal and informal institutions resort to strategic adaptation in relation to each other's motives and adherence to formal plans and policies. Risks and vulnerabilities to climate change are interpreted and used (and abused) by both the formal and informal actors and can range from material risks (from disasters such as floods and cyclones), livelihood risks (reliance on city infrastructure systems and political connections), health risks (drinking water supply) and financial risks (threat to previously accumulated capital). Once a risk (observed or unobserved in governance) is transformed into an actual problem, a disaster, the formal/informal interplay can take multiple directions - in some cases leading to more antagonistic confrontation and conflict, in other cases to new forms of collaboration, and still in others new strategies and tactics employed by power and rationality to maintain or resist existing power relations.

The actions of governmental players were driven by more than just climate risk adaptation, as they fitted seamlessly into other and often new and old agendas of the formal institutions.

New discourses, this time of climate risk, can easily be captured by different actors for their agendas (land capture for state-led real estate projects or negotiating land tenure to maximize livelihood opportunities), and building the new associated expertise into systems of planning and governance can thus be an exercise to maintain positions of power. Thus, the governmental interest in existing forms of adaptation in such cases is even lower than in cases where the blind spots of modernist and seemingly rationality-driven governance are the only problem. Yet, whatever the cause of the blind spots, they do create new risks.

If the existing interplay between formal and informal institutions remains unobserved, existing risks, adaptations, and forms of risk governance are easily overlooked, and the connections between climate-related risk and other risks can be ignored, between risk and opportunity, between risk rhetoric and actual risk communication and governance (Agrawal et al. 2022). This means, in all likelihood, that these factors will combine in unobserved ways to create new problems, which, according to EGT, are not necessarily located in the domain of climate adaptation policy, but could reverberate throughout the governance system. Our case studies indicate that some awareness of the utility of the other side (formal or informal) and their interplay, is often present locally, and this brings us to a conundrum that cannot be altogether avoided: the question of what should be observable for whom? Indeed, whereas formal institutions are per definition visible, and informal ones only partly transparent (cf Van Assche, Shtaltovna, & Hornidge, 2013), there might be good reasons for locals' suspicions and opacity, and the transparency we just argued for can also be abused by governmental actors only pretending to pursue common goods. This, however, is not an argument against the perspective offered here. We have to presume that there are actors interested in common goods, democratic governance, climate and other risks, and fair opportunities. As scholars before have pointed out (Foucault, Machiavelli, and Flyvbjerg in planning), any power analysis can be abused by the powers that be, but that is no reason to stop analyzing, to limit the understanding of those who do strive for a better community.

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Chapter 5: Climate Shocks and local urban conflicts: An evolutionary perspective on risk governance in Bhubaneswar

Abstract

In this paper, we explore the complex entanglements between ongoing land conflicts and climate shocks, and their implications for risk governance paths and evolution. We focus on ways in which concepts of shock and conflict can be incorporated into social-ecological systems thinking and applied to risk governance practice in a southern cities context. Through a qualitative inquiry of two slum redevelopment projects in Bhubaneswar city in India, we trace the origin and evolution of conflict around land tenure and eviction in informal settlements, as well as its interaction with local manifestations of climate shocks. Climate policies, as responses to climate shock and intended to mitigate climate risk, are observed as constructed, interpreted, framed, and used strategically by formal actors to further urban development objectives, while the local knowledge systems, risk perceptions, and adaptations are ignored in practice. This study helps to re-think the complexities of climate risk governance in southern urban spaces where multiple risks overlap and interact within the diverse realities of informality and vulnerability. A singular focus on one type of risk, on the formal order to manage that risk, is likely to overlook other risks and opportunities. Hence, shocks are likely to produce more unanticipated effects, conflicts function as the unobserved middle term, and the formal policies and plans to mitigate climate risk contribute to the creation of new risks.

Keywords: social-ecological systems; shock; conflict; southern urbanism; local climate governance; urban planning

5.1. Introduction

In recent decades, climate change in the face of fast urbanization has provoked new forms of interventions and risk governance within southern cities as a key imperative action. Scholarly studies continue to stress the importance of examining resilience and adaptation policies beyond their performativity toward developing a combined understanding of complex riskscapes and associated vulnerabilities (Bulkeley & Tuts, 2013; Fraser, 2017; Hillier, 2015; Innis & Van Assche, 2022). Other scholars have called for different frameworks to understand the external hazards or systemic shocks as well as scrutinize governance strategies

and tools that engender internal social conflict (Djanibekov & Valentinov, 2015; Nursey-Bray, 2017; Selby & Hoffmann, 2014; Van Assche et al., 2022).

The idea of shocks can be traced to ecology, and later to social-ecological systems and resilience thinking, wherein systems (such as urban systems) are assumed to be stable, and expected to cope, bounce back, or bounce forward after a shock event to maintain equilibrium, or end up collapsing in events of disruption emanating from its environment. In this study, we begin with the assumption that social-ecological systems never collapse completely when they experience shocks (Van Assche et al., 2022). We refer to shocks in this study as specific events attributed to climate change that disrupt the city system when a coordinated governance response is not possible. These events can have a significant impact on already existing disturbances within, and provide opportunities for the emergence of conflicts. Studies within the planning and governance scholarship continue to frame conflict through a negative bias, as a phenomenon to be avoided in practice (Forester, 1988; Healey, 2006; Hillier, 2003; Okpara, Stringer, & Dougill, 2016). Most policy attention thus goes into determining the cause of conflict to resolve it (Forester, 1988; Healey, 2007, 2012; Hillier, 2003; J. Innes & Booher, 2018). In the context of many southern cities, the conflict is predominant between formal and informal systems, and consequently, plans and policies operate through conscious forgetting (Mielke, 2022; Shatkin, 2004), or a system of deregulations and maintenance of power relations through territorialized flexibility by state institutions (Roy, 2009b).

In this paper, we offer theoretical and empirical insights into the role of climate shocks and social conflicts in climate risk governance. We focus our attention on southern cities to understand how climate shocks and social conflicts around eviction dynamics influence climate risk governance paths. The sites of inquiry are two slum settlements in the city of Bhubaneswar in India, where there are ongoing tensions between state-led development goals on one hand, and increasing climate risk on the other. The paper aims to understand the combined effects of climate shocks and urban conflicts in risk governance in southern cities. In the context of Bhubaneswar, we conduct this study with the following research question: how do existing urban conflicts in informal settlements interact with climate shock events to influence climate risk governance? Specifically, we examine the decisions and implementation of recent Smart City initiatives as well as the State Climate Action Plans in Bhubaneswar which tend to employ slum redevelopment as an urban land rejuvenation and climate adaptation strategy, its manifestation within existing local urban practices, as well as

its entanglements with climate shocks. We investigate two slum redevelopment projects in which there are ongoing tensions between continuous eviction attempts of formal state authorities and self-organization strategies of local slum residents to achieve land tenure.

We employ a qualitative lens, undertaking an in-depth ethnographic inquiry of two slum redevelopment projects in the study area to provide insights into an alternate understanding of risk including its governance and management within informal settlements at the local scale. Through this study, we argue that the combined effects of climate shocks and existing formal/informal conflicts manifest in multiple overlapping risks that become easily observable and clear, while also limiting climate action to more ad hoc, spontaneous, and short-term adaptation practices. The existing planning and governance decisions around risk tend to contribute to naturalized social conflicts that reduce the chances of long-term adaptive capacity and perpetuate vulnerabilities of slum residents. This study contributes to the discussion on risk governance and southern urbanism, highlighting the presence of modernist planning legacies manifesting through fantasy visions for urban spaces, and cautions toward the unintended effects of not integrating formal/informal tensions within governance frameworks³⁶.

We refer to fantasy visions of urban space in the sense that what is projected into the future is not informed (enough) by knowledge of local problems and potential, but structured by desires. The structure of the visions enables us to discern the nature and the source of such desires. These are not merely imaginaries, which always exist, and which are needed for future-oriented governance, providing narratives enabling coordination around particular futures (Van Assche, Verschraegen, & Gruezmacher, 2021). In order to speak of fantasy visions, we need to discern a disjuncture between vision and current reality, a blindness for aspects of the present which ought to inform visions for the future (Gunder & Hillier, 2016; Hillier & Gunder, 2003).

In the rest of the paper, we elaborate on the various aspects of the paper. We begin with a short introduction of the concepts of shock and conflict in Section 2, along with a brief on the study framing within an evolutionary perspective in the environmental governance literature. This will be followed by the methodological aspects of this study in Section 3. In Section 4,

³⁶ We recognize that the process of formal/informal integration is messy in reality, and is always carries with it risks of furthering of conflict and exclusion due to power relations; yet argue for constant observation and reinterpretation of changing power relations in light of the integration, to have implications on effective democratic processes.

we introduce the main findings and observations from the two cases, followed by a brief discussion in Section 5 in light of possibilities and theories around the vulnerability and adaptation of urban communities. We provide some reflections on our study in the concluding thoughts in Section 6, also highlighting some limitations and future explorations based on our findings.

5.2. Climate Shocks and Social Conflict

We frame this study broadly building on the perspectives provided by social–ecological theory and resilience-based approaches in planning that aim to understand cities as social-ecological systems. Systems constantly try to be resilient and adapt to their changing environment, while undergoing a transformation in the process (Adger, 2000; Cote & Nightingale, 2012; Davidson, 2010; Folke, 2006; Mehmood, 2016; Scheffer, Carpenter, Foley, Folke, & Walker, 2001; Veelen, 2016; Walker et al., 2004). Adaptation in this sense is broadly finding ways and means to find a ‘fit’ between the city and its environment, while a lack of adaptation can create disruptions to the internal functions within the system (Sharifi & Yamagata, 2014; Tyler & Moench, 2012; Veelen, Waterfront, & Jeuken, 2018; Walker & Cooper, 2011).

We use an evolutionary perspective on environmental governance, specifically, an EGT lens (Evolutionary Governance Theory), which argues for continuous observation, strategizing, and coordination to identify limited options available at a particular time for achieving governance goals (Assche et al., 2017; Beunen et al., 2015; Djanibekov & Valentinov, 2015; Duit & Galaz, 2008; Duit et al. 2010). Governance here refers to a form of coordination among actors and institutions in taking collectively binding decisions within a community and place. We make a clear differentiation between government and governance, which means that governance is never the domain of just the formal governments, but a combination of decisions by formal and informal actors and institutions (Beunen et al., 2015). There is no perfect procedure or design for governance since it is heavily dependent on the time and context where it is observed.

EGT sees governance as constantly evolving, within which its various elements, i.e., actors, institutions, discourses, power, and knowledge are co-evolving with each other. Using this perspective, shocks and conflicts are seen as related and influencing each other, and both in turn can combine to influence governance contexts. This paper uses these perspectives to observe Bhubaneswar city and identify how specific shock events induced by climate change,

particularly cyclone events, combined with existing social conflicts (between slum resident groups and formal planning institutions) to influence planning and governance.

The specific events of systemic disruption when a system fails to find a coordinated governance response are referred to as shocks (Van Assche et al., 2022). We do not use other conceptualizations of shocks within SES literature such as tipping points, equilibrium, and collapse, and critical transitions (Alberti & Marzluff, 2004; Berkes et al., 2002; Fischer-Kowalski & Rotmans, 2009; Folke, 2006; Folke et al., 2004; Scheffer et al., 2009, 2001) that are rooted within ecological studies and assume that phenomena within natural systems can be mirrored for observations within the social systems. The shocks can emanate from inside or outside the social–ecological system (in this study, the city of Bhubaneswar), such as political coups and wars (internal origins) and climate-induced events and stresses (external origins) (Hendrix & Salehyan, 2012; Salehyan, 2008). As described earlier, we focus our attention on the latter, and more specifically on climate shocks that often manifest in the form of crystallized disaster events that cause temporary or threaten to make permanent changes within the city governance system, and are easily observable (Adger & Kelly, 1999; Brancati, 2007). At the same time, we recognize that shocks are socially constructed events, meaning they do not occur in isolation from their social and ecological context, and often have far-reaching impacts on other social systems such as economic and political systems (Gregory, Ewers, Chung, & Cator, 2022; Hirons et al., 2020). Shocks can further influence future risk interpretations and ways to observe and cope with them from within the system, through the creation of new meanings, risk and governance objects, and power/knowledge configurations (Bahadur, 2014; Bhardwaj & Khosla, 2020; Chu, 2015; Holden & Westberg, 2016; Jordan, 2021; Nkiaka et al., 2019; Singh & Basu, 2020).

We refer to conflict in this study broadly as prolonged disagreements, incompatibilities and struggles between different actors and organizations within a social system concerning the use of resources, organization and development of spaces, or processes of response to shocks (Gruezmacher & Van Assche, 2022). Unlike shocks that emanate from the environment (of an SES), conflicts always have discursive origins within the social system. Conflicts are ongoing processes (not episodic events) that can be observed, resolved, and managed through governance and planning. Conflicts can exist between formal and informal actors and organizations and are dependent upon history, governance context, and degree of trust between actors (Van Assche et al., 2022). Conflicts can be also between different stories and imaginaries about the past, present, and future of communities and their shared spaces.

Stories and imaginaries in our governance perspective (cf Pierre 2020; Van Assche, Beunen, et al., 2013) are necessary for governance to function, as part of the power/knowledge configurations that drive governance. They can enter into governance from the community, from elite actors, and they can be produced in governance and used to persuade residents of a particular policy or a particular future.

In the context of the climate change literature, conflict is conceptualized within the cause-outcome approach in multiple ways, ranging from the focus on direct influences (of changing climate) in the form of security threats at international and national levels (Burke et al. 2009; Busby et al. 2014; Hsiang, Meng, & Cane, 2011; Mach et al., 2020; Theisen, Gleditsch, & Buhaug, 2013; Zografos, Goulden, & Kallis, 2014); to ecological threats (Berkes, 2009; Duit et al., 2010; Lebel et al., 2006); and to indirect influences such as climate shocks creating space for conflict (Forsyth & Schomerus, 2013; Tiller, Brekken, & Bailey, 2012). Other scholars however argued that these linkages are rather over-simplistic and positivist, and conflict needs better understanding through alternate interpretive lenses (Buhaug, 2015; Nursey-Bray, 2017; Selby, 2014). Our orientation in this study is towards the latter proposition, hence the search for new ways of understanding and interpreting shocks and conflicts.

Both shocks and conflict can be productive as well as destructive for different actors depending on the governance context and its configurations. In their theoretical paper, Van Assche et al. (2022) highlight how shocks and conflict can be useful in the creation of new narratives within communities, new institutions, new landscapes, and reflective governance insights. Their combinations can potentially spur innovation in governance and sometimes result in fast evolution. Yet, shocks and conflicts, when combined, have negative effects if they force decision-making that forgets particular identities and discourses around previous shocks. Within governance, scholars have highlighted how the adoption of short-term coping responses to climate shocks can be potentially maladaptive in the long term (Singh & Basu, 2020; Singh et al., 2021; Teampău, 2020; Touza et al., 2021).

Despite the theoretical advancement of shocks and conflict in social-ecological systems and resilience theories, their application in southern cities, particularly in informal settlements (such as slums) remains scant. The links between informality and climate change are complex, yet understudied in cities worldwide. Informality in planning practice in general has largely remained outside the scope of formal plans/policies, and this legacy has continued in

the formal climate plans (Roy, 2009b; Roy & Alsayyad, 2004). Informal settlements are usually seen from an order/disorder lens, thus conceptualized as chaotic, illegal, and unwanted spaces within a city that need revival for meaningful development in cities (Chu et al., 2015; Chu & Michael, 2019; Pathak & Mahadevia, 2018; Trundle, 2020). Due to the ongoing struggle for a city's spaces, resources, legitimacy (both in practice as well as in formal plans and policies), as well as access to socio-political networks, the informal settlements within cities are naturally prone to conflicts with the formal planning system (Lara-Hernandez et al., 2020).

Recent emergent scholarship has however critiqued the above approach, highlighting that existing plans and policies on climate change fail to capture the various drivers of vulnerability in informal settlements (Hayoz, 2015; Trundle, 2020; Van Assche et al., 2012; Watson, 2003). Studies advocate focusing on the existing realities that exist within the informal settlements, including local risk knowledge, self-organization, and transformative potential of the residing communities, as well as the possibilities around creating seemingly formal institutions and adaptations to multiple overlapping risks emanating from climate change and non-climatic issues. We study the informal settlements in Bhubaneswar through the latter lens on informal settlements—that they are always in flux, always self-organizing concerning multiple risks (livelihood, political, social, and climate change risks), and in constant interaction with the formal system of actors and institutions. The interactions between the informal and formal systems are never-ending and may result in collaboration and increased participation in some cases and projects, and it may result in conflicts and mistrust in other cases due to disagreements over the organization of urban space. We apply an EGT lens to understand the emerging conflicts in informal settlements in the study area, while also mapping the effects of how the nature of conflict changes when it overlaps with acute climate shocks.

5.3. Cases, Data, and Method

5.3.1. Background and Study Area

This study was carried out in Bhubaneswar city, the capital of Odisha state in India. Bhubaneswar has a history that goes back over two thousand years; the city was a religious centre for Hindus and Buddhists, and gradually turned into the administrative capital of Odisha in 1948 after India's independence. The city grew sharply in the late 1990s and 2000s

owing to the liberalization in India, with the rapid growth of public and private corporations and infrastructure projects (Sahu, Bose, & Samal, 2021; Satpathy, 2021). This growth has been complemented by a rapid in-migration of population groups and a rapid growth in the local economy in the last two decades. At present, the city has a population of 840,834³⁷, with 163,983 persons (19.5 %) in 436 slum settlements (Anand & Deb, 2017; Directorate of Census Operations, 2011). The two relevant formal planning actors in Bhubaneswar are the Bhubaneswar Municipal Corporation (BMC), which is the elected urban local body responsible for the implementation of planning initiatives, and the Bhubaneswar Development Authority (BDA), which is the parastatal body responsible for planning activities. Other state organizations such as the State Climate Change Cell, Odisha State Disaster Management Authority (OSDMA), and State Pollution Board (SPCB), along with local and international organizations (World Bank and United Nations Development Program), also coordinate on matters of risk management, adaptation, and resilience along with other general urban development goals.

Bhubaneswar city (and Odisha state in general) has a history of experiencing disaster events; thus, disaster risk reduction thinking has been deeply entrenched in public and institutional memory for decades. Throughout the 2000s, there was a sharp growth in the city, with multiple development projects emerging throughout the city. Owing to rising private development and leap frogged residential complexes, the land prices have surged in the city, which in turn has put extensive pressure on the slum areas. During this time, the frequency and intensity of rainfall, as well as disaster events such as cyclones, floods, and heatwaves have increased, as noted in the State Action Plan for Climate Change (SAPCC) that was formulated in 2010, and subsequently revised in 2015 and 2018 (Government of Odisha, 2018). The SAPCC identifies multiple responses through a combination of mitigation and adaptation actions to balance the economic developmental interests with the climate goals of the state. These actions range from industrial pollution and GHG emission reduction to rainwater harvesting and resilient infrastructure toward improved disaster risk communication and updating existing institutional capacity. The state departments and the city municipal body in Bhubaneswar are at the forefront of most climate action in the city. The SAPCC attributes various climate risks in Bhubaneswar to multiple factors that include growing rural-to-urban migration and proliferation of slums in the city, which are making the

³⁷ The last Census in India was held in 2011.

city less resilient while acknowledging that these spaces are the most vulnerable themselves to the effects of climate change (Government of Odisha, 2018).

Since 2011, owing to the framing within the SAPCC as well as other plans and policies, slums have gradually become a spatial object of governance³⁸ in Bhubaneswar. The new city masterplan in 2011 and SAPCC in 2015 subsequently contributed to the discursive construction of slums as climate risk objects and governance objects, by framing slums as high-vulnerability areas that needed intervention. Consequently, the policy responses within the SAPCC identified affordable housing projects, including various slum redevelopment projects, as a relevant adaptation strategy to reduce climate risks in Bhubaneswar.

In the absence of a city-wide redevelopment plan, the BDA has formulated several slum redevelopment projects throughout the city (as of December 2022, 11 projects are in progress in several parts of the city) to implement the various plans (Bhubaneswar Development Authority, 2021). These projects are guided by central and state-level policies as well as legislation. Noteworthy among these is the central vision of a slum-free India that was launched through the flagship program viz. Rajiv Awas Yojana (RAY) in 2013. In Odisha, the Land Rights for Slum Dwellers Act (LRSD Act) was passed in 2017, which guaranteed limited land rights to all slum dwellers in the state. Consequently, the Odisha Liveable Habitat Mission (also known as the JAGA Mission) was launched to provide land titling to slum dwellers in Odisha. The LRSD Act in 2017 did not initially cover large municipal corporations including Bhubaneswar, but eventually was amended in 2022 to include all urban areas in Odisha state, including Bhubaneswar. It is noteworthy here that before its introduction in Bhubaneswar, the JAGA Mission has been considerably successful in several towns and cities in Odisha, and has received wide recognition internationally (UN-World Habitat Awards, 2019).

The ‘slum-free’ goal of the state was emphasized within the centrally led Smart City Mission 2015 (slum-free neighborhoods to achieve the goal of climate-smart cities). The SAPCC also identifies the need to integrate cost-effective and resilient buildings in existing slum redevelopment projects (Government of Odisha, 2015, 2018; IBI, 2015; World Bank, 2017). The projects are built through two main implementation strategies—first, through the process

³⁸ Objects of governance in the EGT lens are produced through discourses and practices of thinking and action, though the processes of reification (conceptual surfacing through discourses and action), solidification (internal differentiation and articulation of elements within the system), and codification (creation of distinct system/environment boundaries).

of in situ development (provision of a maximum of 30 sq. meters of land per household to existing residents) or second, by evictions and resettlement in transit homes (Govt. of Odisha, 2017, 2021). The LRSD Act, however, provides limited rights to the slum dwellers (no entitlement, no resale, and sub-leasing), and does not specify procedures for implementation (Mohapatra, 2022). In the absence of clear procedures for redevelopment projects in the legislation or the plans, the actual practice of slum redevelopment is dominated by past approaches of slum clearance and relocation through enforcement. In recent times, the Enforcement Wing within BDA has engaged in the eviction of several slums and other unauthorized settlements throughout the city (335 evictions between 2021 and 2022), as part of its slum redevelopment strategy. While many of the evictions have been largely peacefully carried out, there are also several instances of conflicts between the residents of informal settlements and the formal authorities (Bhubaneswar Development Authority, 2021, 2022; Panwar, 2019; TNIE, 2020). These projects that led to local conflict are the cases chosen for this study due to their relevance to the research question.

Considering the above context, slum redevelopment initiatives in two locations within the city were selected for detailed analysis in this study, viz. Shantipally and Pandakudia (see Figure 4). The redevelopment projects in both slums are ongoing, involving the relocation of six slum settlements in total. The two sites were selected as cases for this investigation since they have a similar history within the city, have similar risks and practices, have some form of self-organization visible, and, most relevant to this study, were both sites of conflict between the local slum resident group and local planning authorities. These two slums were selected eventually based on extensive media coverage of the eviction process since the redevelopment projects started.

5.3.2. Shantipally Case

The Shantipally slum has existed since the early 1980s in the centre of Bhubaneswar city and is home to over 1200 households at present. The land is in a low-lying area near a watershed area that was for most of the 1990s uncontested. By the 1990s, with the economic boom in the city, the slum grew in size. In the early 2010s, to free up previously occupied public land by slums and squatters, various small-scaled eviction drives throughout the city began by evicting squatters, small roadside shops, and temples, but no significant

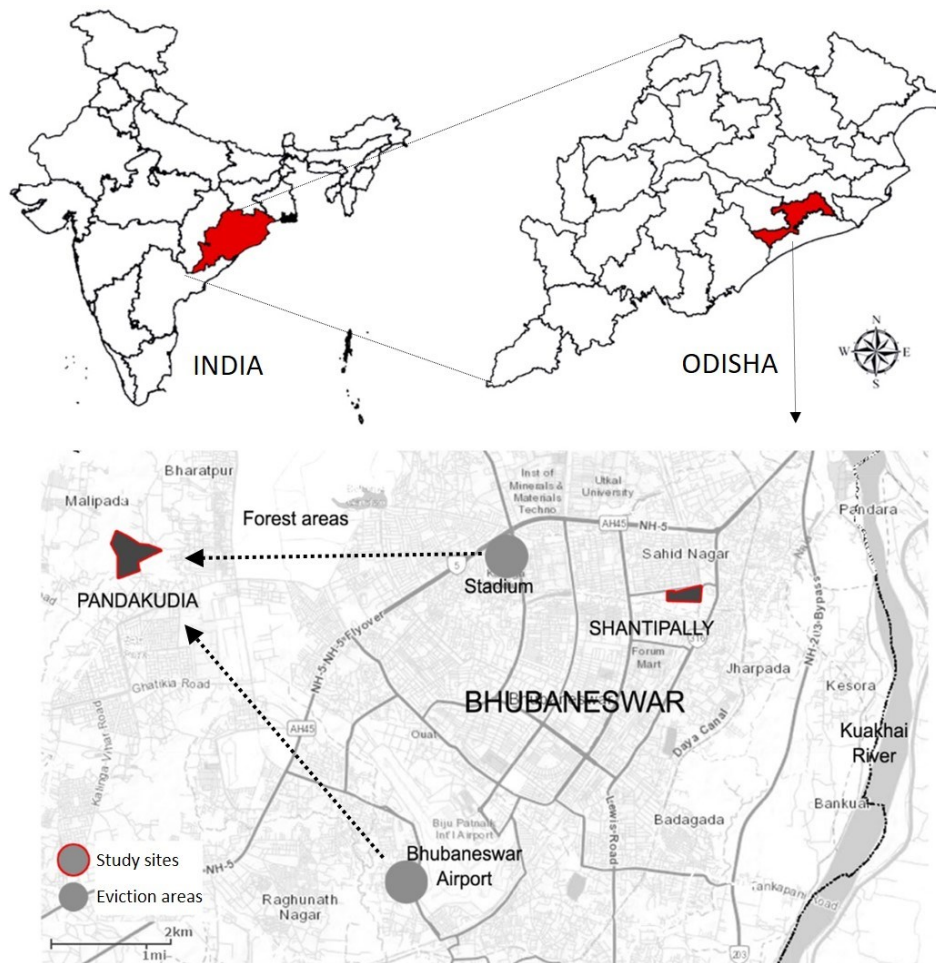


Figure 4: Location of the study area and two slum redevelopment sites in Bhubaneswar (maps sourced from bharatmaps.gov.in and OpenStreetMap (© OpenStreetMap contributors), images collated by authors).

threats were seen to the Shantipally slum due to its strategic location in a seemingly uncontested and unproductive land in the eyes of the burgeoning real estate market.³⁹

3.3. Pandakudia Case

The initial eviction drives by the BDA since 2016 had a domino effect throughout the city, with over a hundred evictions of residences, shops, and religious buildings picking up pace in recent years, especially since 2017. Between 2017 and 2021, five slums, viz. Jagannath basti (basti is the local word for slum), Gowda basti, Farmgate basti, Trinath basti, and Laxmi Nagar basti were evicted from various parts of the city and allotted temporary land for rehabilitation in Pandakudia. Of relevance to this paper is the conflict that sprung up between

³⁹ Based on interviews, personal observation during field visit, as well as informal discussions with residents.

BDA and BMC officials and the residents of Jagannath and Farmgate basti who resisted the eviction attempts for months before eventually being evicted by force to the Pandakudia site in 2018. The reasons for evictions of these slums, as deciphered from various media reports covering the eviction drives, were land acquisitions for airport expansion as well as land clearance for large infrastructure projects as part of the city hosting two international sporting events. During the interviews with slum leaders and residents, the participants highlighted that the slums had a long history of eviction threats since the 1970s (there were conflicts earlier in 1975, 2002, 2006, and 2011 due to eviction threats). However, in 2017, based on our observation and data collected, the eviction threat seems to have been compounded by other powerful discourses in the city, through slum-free policy, climate, and smart city ideas⁴⁰.

5.3.4. Data Collection, Method, and Analysis

We employed a qualitative case study approach in this study. The qualitative case study inquiry is extensively used in planning studies due to its usefulness in exploring ‘how’ and ‘why’ questions, and in situations where the researcher has very little control over the phenomena of interest (Flyvbjerg, 2006; Ruddin, 2006; Stake, 1995; Yin, 2009). The slum neighborhood is the geo-graphical unit of analysis, while we also analyzed the various stories and statements narrated by the participants of this study based on their content and usefulness to answer the research question (cf Yin, 2009, 2012). This study is positioned broadly within a social constructivist paradigm, meaning that realities are socially constructed through subjective meanings and perceptions of individuals, including the researchers. We also adopt an evolutionist lens that emphasizes the importance of understanding phenomena through the lens of constant change that is contingent. This means that the governance system in a city is always unstable, and changing. The governance system is also observed—especially in as far as different influential actors take collective decisions affecting the neighborhood (in this case, the slums), but also as a place where discourses originate, enter, and transform the neighborhood itself as well as its relationship with rest of the city.

Data collection was carried out between May 2020 and January 2022 using online mode as well as through fieldwork in Bhubaneswar city (we adapted the overall field-work based on the restrictions owing to the COVID-19 pandemic). The methods utilized were semi-

⁴⁰ Sources: interviews with slum residents and key informants within BDA, media reports, and document analysis.

structured interviews (28 participants), document reviews (of plans, policies, legal documents, and media reports), and direct observation. In total, 9 state actors, 16 non-state actors (including 3 activists and 13 slum leaders and residents), and 3 academic experts were interviewed after recruitment through snowballing (Kvale, 2011; Maxwell, 2013; Roulston & Choi, 2018). The main approach of interview recruitment and sampling employed in qualitative research was based on data saturation (Maxwell, 2013). The focus was thus on the richness of the data collected as opposed to the quantity, drawing from Maxwell (2013). Guest, Bunce, & Johnson, (2005), in their exploration of the adequate number of interviews, found that between six and twelve interviews are enough for most qualitative studies. Our sample of 28 respondents is in line with these findings, as well as caters to multiple state and non-state actors. All interviews were conducted either in English or Odia (the local language), following all ethical protocols and data protection standards. The questions during interviews revolved around sharing past and present experiences of the redevelopment project and the existing disagreements between the communities and state officials. The interviews lasted from 45 to 120 minutes, wherein all questions were open-ended.

The interviewees were chosen by us partly by identification of key actors in media and policy documents, and partly by snowballing during the fieldwork, i.e., interviewees pointing at other people as potential interviewees. Interviewees were selected not only because they were 'key actors', i.e., people with influence on decision-making and insight into governance, but also, in other cases, because they had a good insight into the processes of shock and conflict locally, or because they represented clearly different perspectives on what happened and what should happen. We ended the process of conducting interviews when we reached a point of saturation, i.e., when patterns of discourse started to repeat themselves, and when the mapping of local governance and the entangling with shock and conflict (the research question) became clear and understandable, and the logic became apparent.

The key data sources were interview transcripts, field notes, memos, and documents. We transcribed all interviews and coded them for descriptive and thematic codes. The codes were both inductive and deductive, based on the existing literature as well as the interview text. Codes were used to capture the emerging themes from the conversations and documents such as self-organization, adaptation practices, risk, and vulnerability. We employed thematic analysis to arrive at the main themes and coding categories relevant to the research question. The findings from the cases were used to arrive at theoretical propositions and generalized theory on SES and resilience theory, as well as policy in similar governance contexts.

5.4. Findings

5.4.1. Shanti Pally Redevelopment Case

Emergence and Persistence of Conflict

A major turning point in city planning in India came in the form of the introduction of the new Smart City Mission at the national level in 2015. A hundred cities were selected from the list of proposed smart cities throughout India based on a competitive ranking system between cities, with Bhubaneswar city leading the list. Consequently, a smart city proposal and strategies were formulated by 2016, which had overall goals to create specific smart and climate-resilient neighborhoods through area-based development through urban design approaches, as well as digital governance system introduction as the key implementation strategy (IBI, 2015; Parida, 2020, 2022; Satpathy, 2021). Bhubaneswar city's proposal involved multiple slum redevelopment projects (to build smart and resilient development) in the city that included a large 2232-household redevelopment project near Shantipally, through a PPP (Public–Private Partnership) mode. With the introduction of the new Smart city discourse, new stories were introduced within the city system. Slums became a governance object owing to politics around evictions, and new planning goals were introduced in planning in the form of slum redevelopment that became an active governance strategy. These projects were framed as having co-benefits of being climate adaptive action in the revised Climate Action Plan in 2015 (Government of Odisha, 2015). There was an acute shift in the prevailing stories and imaginaries among planning and municipal institutions, from 'slums as illegal encroachments' to 'slums as illegal as well as risk to climate change and city image'. Interviews with slum leaders in Shantipally revealed that the slum dwellers initially looked up to the new Smart City Initiative as a positive change that could potentially provide them with opportunities. A resident, for example, described the following:

“When the BDA did the Smart City survey, we were overjoyed that we would get all facilities like hospitals, grounds for our kids to play, and many other facilities. It came so suddenly; people here were very happy. We were just happy that our lives will improve.”

As the surveys started for the construction project in 2017, there were severe disagreements that emerged within the slum community itself, with one group of nearly 200 households agreeing to move to the redeveloped apartments in the future, while another disagreed with the terms of displacement, demanding either land ownership or larger apartments.

Consequently, as interviewees revealed, the local political parties seemingly entered the scene, and internal conflicts brought out political allegiances to the forefront. There were initial eviction notices and informal coercion that proceeded. A slum leader in an accusatory tone described the following:

“That time there was party politics⁴¹, they (the authorities) threatened us that they will remove us by force. Due to these threats, we decided to file a legal case to get a stay order from the High Court.”

The residents revealed that they decided to seek help from Right to Information (RTI) activists⁴² who helped the community self-organize through the internal election of leaders as well as providing them with necessary legal assistance to challenge the eviction in court. The conflict became codified when the residents secured a ‘stay order’ from the court, which directed all stakeholders to maintain the status quo at the project site⁴³. Meanwhile, due to evictions that continued in other parts of the city, we observed that the conflict became normalized, as stated by an interviewee (a municipal planner) as “quite natural for these slum dwellers to keep coming at us in one way or the other”, and that the state must be “tough to develop the public land in the public interest”.

Entanglement with Climate Shocks

While the existing social conflict was ensuing, the residents refused to be temporarily shifted to a nearby lowland area till the construction of the proposed housing project was completed, citing risks of waterlogging in the area compared to the safety of their present location, which they “made habitable” on their own. A slum leader reflected the following:

“We didn’t trust their words. We would not have survived there. That year (2018) there were floods, and the water reached chest height. Later many of our neighbors who used to oppose us also agreed that if we did the right thing and not moved there, we would have been in big trouble. Our houses would have got flooded.”

⁴¹ Party politics here refers to political games played at the local level between Biju Janata Dal (the ruling party) and Bharatiya Janata Party (the opposition party) in Odisha.

⁴² The Right to Information (RTI) Act, 2005 in India mandates timely response by state officials to citizen queries and requests related to government information. The Act was brought to empower citizens and promote accountability and transparency in the governance process at all levels (central, state, and urban/rural bodies). RTI activists use the RTI Act as an instrument to legally challenge eviction attempts by state authorities.

⁴³ Based on legal case documents shared by participants during interviews.

Local risk knowledge was likely being ignored in the adaptation frameworks by formal organizations, leaving space for more vulnerability of already at-risk communities. Following this event, the city administration faced a climate shock when the powerful cyclone Fani struck the city, bringing the physical infrastructure and service to a complete standstill for over a week and the social infrastructure for many months. For the slum residents, this meant the exacerbation and entanglements of multiple risks (health, livelihood, and housing risk), as well as the struggle for basic resources. The legacy of mistrust and unequal power relations between actors also likely deepened the conflict over the nature of post-shock recovery. A slum leader reflected on the post-Fani experiences as follows:

“There was no electricity for seven days throughout the city. When the BMC finally restored the electricity in nearby areas, they ignored Shantipally at that time. Only after we protested in front of the electricity Department office did they finally restore it for us after many days.”

Residents described that with limited help from the authorities during the recovery phase, they had to rely on local private NGOs for relief, to fix their damaged houses, and also had to deal with waterlogging due to incessant rains. This also meant low motivation to invest in any future meaningful household-level adaptation actions, citing that they “will be removed from this location anyway”⁴⁴.

Current Status

The community in Shantipally is hanging on to their existing land, while the case is still pending in court. The old disagreements remain among the actors and based on our interviews, we interpret logically that the room for negotiations is seemingly narrow at this point. With several other projects within the smart city proposal in various parts of the city going on in full swing, the pressure of holding on is getting more complicated. The emergence of local slum leaders through the help of activists has provided a greater voice to the community, and space for future possibilities for a shared vision for the redevelopment project. Yet, we observed that local knowledge remains ignored in the implementation of the projects, especially in the management of risks as prescribed in the climate action plan that seems to be biased towards expert knowledge on resilience and adaptation, and also tends to have a narrow focus on risk assessment; i.e., a wide range of risks may be identified in the plans, but their overlaps with each other and with other elements of governance are not easy

⁴⁴ Source: interview with slum resident.

to decipher and are even more complicated to observe and interpret as they unfold in practice. From the case observations, it was clear that chronic social conflict has reduced trust between actors, making even short-term adaptation actions self-contradictory and difficult to implement.

5.4.2. Pandakudia Case

Emergence of Conflict

The BDA had an incremental approach to large evictions in recent times, as revealed by senior authorities within the BDA. The BDA managed to displace nearly 80 houses in July 2017 before the sporting event commenced. Following this, in early 2018, the BDA demolished nearly 20 shops and the temple that was located at the centre of Jagannath basti. This triggered unrest among the slum residents, who decided to protest⁴⁵. A slum leader remarked the following:

“They (authorities) wanted to divide the shop owners from the rest, assuming that the Basti Sanghatan (Slum Committee) will weaken – this is because the shop owners were providing financial support as well as food for our community during emergencies. We (the slum committee) didn’t let them divide us, though. We collected money from all households in our slum to tackle the absence of shops.”

As the evictions continued incrementally, the slums started to reduce in size. The residents revealed that they eventually decided to organize formal protests to negotiate with the BDA and BMC believing they “will find a way to stop the evictions just like in the past”⁴⁶. At the same time, local old rivalries seemingly emerged, with the slum leaders opining that local politicians and leaders who were waiting for electoral gains likely saw this conflict as an opportunity for demographic change (through the removal of the slum) within the area, and thus supported or opposed the eviction informally based on their interests.

Local risk knowledge was yet again likely ignored by the authorities in the redevelopment project, thus increasing the vulnerability of the slum residents due to poor land use decisions. As mentioned earlier in the paper, neither the masterplan, the SAPCC, nor any local policy of the BDA and BMC specifies any rational process involved in the selection of land for relocation of slums. Senior BDA officials within the Enforcement Wing confirmed this

⁴⁵ It is interesting to note that the slum residents here did not decide to pursue a legal stay order like the Shantipally residents; when probed about it during the interviews, several resident leaders noted that such an approach “wouldn’t work in the long run”.

⁴⁶ Source: interviews with slum residents and leaders.

during our interviews, while also mentioning that they take decisions “on the ground” regarding relocations, depending upon the degree of cooperation by the slum community and the nature of the conflict. The proposed Pandakudia site is itself in a flood-prone area next to a reserve forest land on the out-skirts of the city with a poor access road (revealed during interviews with senior BDA officials, and corroborated through a personal visit to the site). These potential new risks of displacing the community were ignored by the state organizations during the planning process; yet, the slum community was aware of this before relocation. Apart from the usual demands related to property rights and livelihood opportunities, the slum leaders emphasized in our interviews that they conveyed to the authorities the local risks associated with flooding and human-wildlife conflicts (the site is close to an elephant reserve). A slum leader during an interview remarked the following:

“When we got the news that they were planning to shift us to Pandakudia, some of us had visited these places out of curiosity. Just like they were surveying our slum, we were surveying their proposed site. We saw that the area was almost a forest with wild snakes and elephants. We also saw that the main access road was always water-logged, even on non-monsoon days.”

Negotiations in a Context of Conflict

As the dates of the Hockey World Cup in 2018 got nearer, the eviction drives of the BDA and BMC intensified, likely due to the pressures of achieving major development milestones before the event. While the authorities began their surveys of the households to be rehabilitated, the slum committee organized protests demanding land tenure. There seems to have been informal coercion by the authorities by deploying the police force “that looked like from outside the state since they did not speak the local language” as a strong deterrent against any potential violent protest. The residents on the other hand threatened the authorities with further protests during the sporting event to “protest and embarrass the authorities” as a countermeasure ⁴⁷.

Eventually, the residents agreed to negotiate with the authorities over the details of compensation to be provided to the affected families. Upon negotiation, the authorities helped the community move to the new location by providing them with transportation and basic

⁴⁷ Source: interview with slum leader.

needs for a few weeks (such as water supply and temporary roofing material). A slum leader recalled the following:

“First they said they will settle us in another site on the outskirts of the city. We refused. After much arguments back and forth, finally, the Mayor and the Municipal Commissioner said that they will offer 35000 rupees. They promised to construct one toilet for 10 houses; also they gave each house 120 square feet in Pandakudia. We did not agree, but what choice did we have”.

Acute Shocks and Spontaneous Adaptation

Only a month after the residents were displaced, the community was exposed to a major climate shock (Cyclone Titli in 2018) that created further precarity, since the residents had not yet recovered from the displacement. A slum leader in the Pandakudia site recalled the experience as follows:

“The two cyclones (Titli and Fani) hurt us badly. Due to heavy rains, the water flew downstream here from the jungle area and washed away many of the walls since they were merely built. All the sand that was accumulated here for construction was washed away. We lost a lot of valuables such as a TV, refrigerator, and fans. So basically, the 35000 that we received as compensation, we lost most of it to the cyclones.”

Another slum resident highlighted how local coordination among volunteers and community leaders was instrumental in temporary and spontaneous recovery actions:

“During cyclone Fani, the roofs of our houses started flying in the air. All the electric poles were bent during the storm. The Electricity department initially did not respond to our complaints. How long could we wait? After a few days without electricity, we organized volunteers from all the slums here and restored it ourselves. It took us 7–8 days of constant hard work. Even the houses, we had to reconstruct by ourselves. They just gave us 10 kg rice and 2000 rupees after the cyclone.”

The double exposure caused due to overlapping risks (from climate shocks, and development projects, plans, and policies) also brought about spontaneous coordination among formal and informal actors, a positive effect of the combination of shock and conflict. For example, during the cyclone events, the government disaster community officers collaborated with the residents to effectively communicate risk and manage the evacuation and post-disaster relief process, as revealed by several interviewees. This local coordination helped the community

cope with shocks with the loss and damage limited to material assets and livelihood threats. A slum committee leader described how lower-ranked officials from the BMC “contacted us informing about the cyclone 2-3 days before it came, and also helped a lot by arranging relief materials”. Yet, these collaborations were mainly with the state departments about whom the slum leaders spoke positively during the interviews, suggesting that the conflict may be a legacy of past local antagonistic relationships. Further, the collaborations were also limited to post-disaster relief, while the long-term recovery was left in the hands of the local governance system. Many new risks increased, such as loss of old social networks and linkages, as well as weaker access to schools and hospitals due to increased distance (many interviewees reported that school dropouts increased after the cyclones). Apart from these, interviewees revealed unanticipated effects of the original conflict in the form of the emergence of smaller conflicts, and several smaller clashes occurring among the newly displaced communities and older urban villages nearby related to the construction of religious buildings and access to resources.

Current Status

As the communities focus on recovery from the recent shocks and adapt to the continuous and intertwining risks, conflict seems to be naturalized from both sides, thus reducing possibilities for long-term resolution or management. A senior planner expressed the larger public interest behind going ahead with evictions, during an interview, highlighting how normalization of conflict in the name of greater interest of the city’s planning objectives is structurally positioned to create more asymmetrical power relations by privileging the elite (private developers, BDA, BMC) and ignoring the interests and imaginaries of slum residents:

“Every eviction meets with resistance. The government has to go ahead, and the proposed projects have to be built in the greater interest of the city. At times, the officials have been attacked. This is natural, it happens all the time.”

In Pandakudia, while the conflict between the BDA and slum dwellers remains unresolved, the prolonged nature of conflict has also resulted in certain unexpected yet very useful outcomes in the form of local NGOs⁴⁸, often with organizational and financial support from international agencies, now helping the residents by providing livelihood support (facilitating

⁴⁸ In Pandakudia, the CSNR (Centre for the Sustainable use of Natural and Social Resources), a local NGO, has been instrumental in providing livelihood support to the displaced residents.

financial loans, enrolment of children in nearby schools, retrieval of lost documents, access to jobs, etc.). As a result, local adaptive capacity has improved in recent times, although uncertainties over future evictions re-main a possibility due to a culture of mistrust between the formal and informal actors. While newer government guidelines around the provision of land to the slum dwellers have been proposed, it remains to be seen how they play out in improving the adaptive capacity and dealing with future risks of the residents, and especially how they are implemented in the context of existing relationships.

5.5. Discussion

In this section, we shall discuss the above observations from the cases presented through a reflection on the complex and contextual interactions between conflict and shocks within a particular governance and policy domain. We make three broad observations based on the cases and link them with the existing literature. Following this, we point at several implications for climate risk governance in theory and practice, and finally provide some reflections on future possibilities.

First, the cases discussed demonstrate that the slum redevelopment initiatives in Bhubaneswar city rely on three strategies, viz. through eviction, demolition, and displacement; active and passive coercion to negotiate land tenure; and passive neglect in the aftermath of the shock events (Reale & Handmer, 2011). Both the Shantipally and Pandakudia cases highlight that slum demolition and relocation remain the most active and favored risk governance policy by formal organizations and institutions. This is based on the objective observation and assessment of slums as a governance risk (including climate governance risk), and consequent attempts to formalize them as a policy response.

Second, this study highlights how particular policy domains (in this case climate risk and smart development policies) can engender local conflict, when specific aspects of formal–informal interactions are not sufficiently addressed in the formal plans/policies and when implementation faces resistance (Alvarez & Cardenas, 2019; Bhan, 2009; Nursey-Bray, 2017; Saguin & Alvarez, 2022). Consequently, the possible pathways to observe risk, the vulnerability of marginalized groups, and options to respond to climate shocks are influenced. The dominant planning and governance approaches, as we inferred through our analysis of Bhubaneswar’s plans, policies, and legislations, are inspired by modernism, through prescriptive ideas and discourses associated with climate change, resilience, and urban development. We refer to ‘modernism’ here as an approach to policy, planning, and

administration where strong state administrations and their experts practice the belief that they can objectively map out society, define problems, and articulate, with scientific help, neutral and optimal solutions. In this case of planning, this can be linked to a belief in ‘the best’ possible organization of space through design or institutional procedures (Allmendinger, 2000; Scott, 1998). We argue based on the synthesis of our findings that the state-led and corporate-funded smart city projects and large image-building infrastructure projects are a manifestation of these policies, which are in this case based on a biased and only partial observation and judgment of risk (including climate risk), resulting in selective use of governance tools and instruments. In doing so, the governance tools continue with a chronic ignorance of contextual factors such as local risk knowledge (based on history and lived experiences of previous disaster events), existing nature of conflicts, informal institutions within slum settlements as well as the plans themselves, livelihood networks, and local vulnerabilities that determine urban practices and adaptation choices of slum dwellers.

Third, this study revealed how climate shocks and their entanglements with existing social conflict made the overlaps between different climatic and non-climatic risks more visible and easily observable (van Voorst & Hellman, 2015). In the cases discussed, local risk knowledge and associated discourses that were previously not part of the land conflicts came to the surface after the shock events, with the slum resident groups high-lighting local risks as a key factor in their refusal to relocate. Both the residents of Shantipally and Pandakudia, in the reflections on the current status of conflict as well as future aspirations, brought up flood and cyclone risk knowledge into the discussion. Risks from climate shocks also increasingly became inseparable from livelihood and social risks that the residents faced due to the shocks and the conflict. We further reflect and add that important climate shock events can be crucial sites of scholarly inquiry to use analytical tools to observe risks and help identify and open up ‘black boxes’ within existing risk governance approaches. We point to a dominant methodological challenge for risk governance, that is related to managing overlapping risks (Innis & Van Assche, 2022; Müller-Mahn & Everts, 2012; Neisser, 2014; Rebotier, 2012; Zeiderman, 2012). In the present cases, conflict increased the slum community’s vulnerability to a plethora of risks (climate, non-climate, and risks from the decisions based on fantasy and imaginaries of smart-resilient neighborhoods). Old narratives of conflict and mistrust between the slum residents and the authorities limited the possibility of adaptive response to the cyclone event, even though interdependencies improved momentarily during the cyclone-

preparedness phase with evacuation and relief work carried out seamlessly by the coordination of formal and informal actors.

Implications for Climate Risk Governance

Based on the case findings and discussions, we identify two implications for climate risk governance. First, based on our interviews of different actors, as well as direct field observations, there is a strong indication of the permanence of conflict within climate risk governance (Nurse-Bray, 2017). This is corroborated in theory, because conflicts never die in social-ecological systems, and resolving them may be theoretically impossible (Bahadur, 2014; Van Assche et al., 2022). Since conflicts are inherently discursive, they are never stable, and with time become temporarily dormant, normalized, or evolve into disagreements between different narratives and discourses. This was observed in the cases presented, wherein the discourses used by the formal and informal actors changed abruptly after the shock events (inspired by new local risk knowledge), so the conflict did not die, but evolved into new narratives and power relations (activists, NGOs and local slum committee leaders assumed more power in the new actor/institutional configurations after the shock events, while the BDA and BMC's narratives around slum clearance weakened). Despite their best interests, we contend that the existing plans and policies have clear assumptions about future development; and by not specifying the nature of redevelopment, the plans directly affect the informal system through forced evictions and hence create the potential for local conflicts.

Second, as presented earlier, certain aspects of social conflicts may be productive from a climate governance perspective. This was observed specifically in the Pandakudia case, which highlighted how the conflict between the formal and informal actors resulted in improved self-organization strategies developed by the slum residents to adapt to the various perceived risks from formal imaginaries. These coordination mechanisms (for example between the Pandakudia community and the BMC officials) become the backbone of the community in dealing with climate shocks, by helping coordinate better local adaptation actions during the crisis, even though they are short-term and spontaneous. When conflicts combine with shocks, they provide room for opening up of previously hidden black boxing of notions about risk, reflections on existing institutions, new power relations between actors⁴⁹

⁴⁹ In the aftermath of the shock events, the existing power relations between the slum residents and the formal planning actors changed into new actor configuration involving more collaboration between the slum leaders, Disaster Management personnel and BMC. Yet, this was only temporary, and the dominant power relations between slum dwellers and the BDA/BMC eventually returned few months after the shock, thus depending the conflict further and reducing trust. Yet, we focus our observation here on the effectiveness of power relations

(possibly through more formal and informal recognition of local knowledge by the planning institutions, increased media attention, and help through social entrepreneurship such as the NGO in the Pandakudia case), and the emergence of new discursive directions in policies and tools. In this sense, conflicts and their complex entanglements with shocks can hold important governance and planning lessons, including the many risks it entails, especially in terms of reproducing power relations between the slum dwellers and the municipal authorities.

In practice, much planning and risk governance tend to focus on either ending or resolving the conflict as an end goal. This is faulty due to the reasons discussed above. We argue for plans, policies, and risk management approaches to be more conflict-sensitive. We recommend that the focus thus should be on what happens when the conflict is seemingly temporarily managed, especially its implications on the vulnerability of the communities involved, and reflecting on the long-term adaptation capacity through policy and governance. Avoiding or partially acknowledging social conflicts in the formal governance frameworks and tools is a futile exercise, especially when observed within local informal settlement communities. In this context, we argue that prescriptive governance frameworks based on clear assumptions of a top-down and expert-driven modernist approach as seen in Bhubaneswar have too many blind spots by failing to acknowledge local complexity and conflict. They may rather benefit from being more reflexive about their potential contribution towards an exacerbation of existing conflicts, the emergence of new vulnerabilities, as well as undermining of existing local-scaled adaptation possibilities. A glimpse of this was observed in the Shantipally case, where the officials acknowledged in their post-cyclone interactions with the slum residents that they had initially erred in their decision to relocate the houses to a flood prone region⁵⁰. Based on document analysis of existing plans as well as interactions with the state actors, we further advocate for the inclusion of conflict management approaches within the risk governance frameworks and risk reduction policies (Babcicky, 2013; Nadiruzzaman et al. 2022). In the case of informal settlements as those studied in this paper, the inclusion may be approached by being more reflexive about the historically dominant narratives and imaginaries about informality in formal plans; focusing on the inclusion of alternate discourses, stories, and local risk knowledge; and striving towards

potentially evolving into reduced asymmetry through observation of the experiences of shock and conflict together.

⁵⁰ Consequently, the city has initiated a local drainage plan, and has started a protocol to prioritize help for nearly 140 slums which are at high risk from flooding (Times of India, 2022).

stable institutional arrangements within informal settlements to identify, assess, and reduce risk.

5.6. Conclusions

We set out to understand the effects of the combination of social conflict and shocks and conflict on risk governance, in the context of informal settlements in Bhubaneswar. Based on our study findings, we strongly argue that conflict is rather permanent and certainly prevalent in social-ecological systems—even though conflicts may become dormant—and thus cannot be ignored in climate risk governance. Shocks are crystallized events where climate change manifests itself materially and socially within social-ecological systems. At the same time, shocks make existing and past conflicts more visible in certain contexts, while in others, they may blur conflicts. In the cases discussed earlier, on the one hand, shocks exposed the conflicts emerging from the existing affordable housing initiatives-related eviction attempts of the local state authorities, and on the other, the formal-informal boundaries temporarily became blurred due to small-scaled local attempts at adaptation and response that relied on local knowledge and support to absorb the effects of shocks.

This study demonstrated that slum redevelopment in Bhubaneswar as an adaptation strategy and risk governance tool through its modernist tendency is accompanied by the baggage of unwanted outcomes such as the patterns of exclusion by being blind towards existing and anticipated conflicts, by focusing on particular risks while ignoring others, and through the construction of new risks and opportunities and associating them with particular spaces within the city. Although this may not be the norm across all redevelopment projects, this observation is made based on the cases that result in conflict. In this context, an abrupt change in the form of forced evolutions and spontaneous adaptation can be brought about through sudden experiences with shocks, which adds uncertainty to risk governance.

We provided insights into the complex entanglements of conflict and shocks within particular risk governance and urban development contexts. This is useful for social-ecological systems and resilience theory in general, which tend to obscure the role of local conflict. We argue for a reassessment of local narratives around risk and conflict within the climate governance literature that tends to focus on conflict in the context of the global climate crisis also see (Boezeman & Kooij, 2015; Innis & Van Assche, 2022; Teampău, 2020). The analysis is immediately useful for southern contexts marked by informality, slum clearance, and self-organization, all contributing to risk exposure under climate change, but it has considerable

implications for other parts of the world where the planning system is based on hybrid combinations of modernism and institutionalism. The Bhubaneswar cases reveal the myriad risks coming with risk governance approaches in a modernist paradigm, i.e., relying on expert discourses, specialized and segmented governance domains constructing their own risks, blindness for local knowledge, hostility towards informality, aversion to conflict, and linear relations between risk perception, assessment, and management. Such a modernist paradigm of risk governance can be recognized across the world and seems reinforced by the feeling of urgency, sometimes panic, engendered by climate change.

Bhubaneswar shows us that ignorance of conflict in the formal system can engender new conflict during planning interventions and reduce resilience when responding to shocks. The cases demonstrate that ignoring existing forms of self-organization, local knowledge, and adaptive formal–informal relations can undermine resilience and increase risk. They reveal that, as noted above, risks never exist in isolation from each other, and are never detached from perspectives on the future. Comprehensive approaches to risk management, such as slum evictions, can thus never be comprehensive if they focus on one type of risk (development risks for example), and they will be blind to alternative strategies and opportunities while creating new and invisible risks and most likely new and evolved conflicts.

Climate change adaptation discourse, and the associated risk governance ideas, in many places, come with a risk of reviving and reinforcing modernist policy and planning fantasies. This often leads to a renewed blindness for alternative interpretations of place, opportunity, and risk, and reinforced positions of power of bureaucratic, political, or economic elites seeing the potential of the new climate risk discourses to pursue old goals (Aitken, 2012; Latour, 2004). This then can create or maintain social conflict, especially in places with a history of groups having been excluded and marginalized in governance, where opportunities are scarce and scarcity is a real problem (Aklin & Mildenerger, 2020). In this sense, we recommend that future climate and development plans/policies in Bhubaneswar and beyond need to be more conflict sensitive, and not just be driven by resilience frameworks which in our interpretation borrow from modernism, and tend to ignore local knowledge and local risks in informal settlements, a dominant part of the urban landscape in many southern cities.

By acknowledging the existence and permanence of local conflicts in cities, climate plans and policies can also focus on incorporating experiences around productive aspects of combined

shocks and conflict that may provide space for new forms of local collaboration between formal and informal actors. This may help sustain these short-term collaborations by not being limited to post-disaster recovery and spontaneous adaptations, but by promoting sustained resilience in the long term. Further-more, we also recommend that formal plans and policies around climate risk take cues from the framework and results presented in this study to become more reflexive in the future by asking critical questions about why and how slum redevelopment has been accepted as a climate adaptation and smart development strategy, as well as the risks associated with such decision making.

Resilience and adaptation in cities can be planned and unplanned, it can be the result of routine responses in governance and by a group of individuals, and it can be the result of intentional responses to change in planning and long-term strategy when these activities are not under the label of ‘resilience’. Nor does a contribution to de facto resilience need to be a type of response to a type of change that is also recognized in the community as relevant for resilience. The response itself, planned or un-planned, might not be closely connected to any easily recognizable feature of resilience, but only very indirectly contribute to the resilience of the system (Duit et al., 2010). This brings us to the basic idea, compatible with General Systems Theory (Bertalanffy, 1968), that resilience cannot be a list of system features that can be the end goal of planning and policies but has to include a consideration of fit between the system and environment. In our cases, the resilience of the informal settlements hinges on internal features and the relation with the rest of the city, while the resilience of the city as a whole can be seen similarly, in relation to the state. Our cases strongly indicated that the legacy of shock and conflict increased the opacity of the governance system for itself, as well as the opacity of the environment for the governance system. If we can consider governance as a basic feature of a resilient system, and a relation with its environment whereby opacity is a problem for resilience, then the observed situation does undermine resilience in the longer term.

We conclude the paper by making a final argument that it is more fruitful and realistic to present the relations between risk perception, assessment, and management as non-linear and as multiple and competing. We contend that risk governance has to be at the foremost ‘governance’, that is, the deliberation and taking of collectively binding decisions to address the risk (to mitigate, ignore, compensate, etc.) and this has to fit the overall principles and direction for the development of the area adopted in the relevant governance arena. Focusing on risk rather than opportunity is a decision that ought to be taken in governance, as is the

privileging of one type of risk over others, or one relation between risk factors over others. Not recognizing these principles is de facto de-politicizing not only climate and risk governance but governance as such (Ferguson, 1994). The relations between risk perception, assessment, and management, moreover, will be affected by shock and conflict, and vice versa (Legese et al., 2018). A shock event potentially engenders shifts in risk perception which are never entirely predictable; it can create conflict, while existing conflicts are very likely to frame the perceptions of risk and opportunity by actors, as well as the perceived options for risk management. In many southern cities, where there often exists a mistrust between the formal and informal systems, the risk perception of slum dwellers is always likely to be affected by the anticipation of conflict and make them suspicious of new resilience initiatives (Chu, 2015). Shock and conflict are thus inextricably linked to climate risk governance, and a modernist delineation and isolation of such risk through plans, policies, and actions from the rest of governance is bound to make the formal system blind to these essential intricacies.

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Chapter 6: Conclusion

6.1. Summary of the findings

The overarching aim of this study was to advance our understanding of climate governance in the context of southern cities. The objective of this research was to understand how different elements of climate governance in Bhubaneswar have evolved in the context of local development context. This research contributes to the theory of institutional approaches to urban planning and governance in general, and particularly to the topical issue of climate risks and its governance in southern cities. I add to the growing literature on social-ecological systems and resilience using an evolutionary perspective, in the process critiquing it as well as striving to make them more useful in southern contexts.

In Chapter 2, I addressed the first objective of the paper, which was to gain a holistic understanding of southern urbanism and identify potential characteristics of southern cities that can act as entry points for future work in planning. In this article, I explored the meaning and existing scholarly interpretations of ‘southern urbanism’ in the context of cities. Through a systematic literature review, I sought to understand the deployment of the term as a theoretical strategy to critique existing urban theory, as well as map its evolution across multiple disciplines. I also synthesized the various theoretical propositions and influential concepts that have shaped southern urbanism. I found that most literature continues to focus on building a rich body of theoretical propositions and concepts, while the methodological approaches and empirical work to support these claims remain scant. I argued for planning theory to remain more theoretically open to the emerging debate within southern urbanism literature – to accommodate understanding the South as both an alternate location and a new way of potentially paradigmatic thinking of the urban.

The objective of Chapter 3 was to gain a deeper insight into the constructed and mutually evolving nature of risk and vulnerability, two central concepts employed in climate resilience plans and policies in Bhubaneswar. In the article, I analyzed how different climate risk discourses and their vulnerability portrayals are constructed within the formal climate plans/policies and have evolved in Bhubaneswar. I found three main discourses through which climate risk is constructed in these documents– discourses of inevitability, collocation, and intrinsic necessity. The corresponding vulnerability portrayals range from being framed as vulnerability to particular known disaster events, to more context-based framing of

vulnerability arising from place and social interactions of which the planning system is a part. I highlighted that the constant intertwining of constructed risk and vulnerability results in creating various risk and governance objects in space and time, thus reproducing old power/knowledge configurations while also helping resist other forms of knowledge. Consequently, the adaptive capacity and resilience of the city governance system in Bhubaneswar are enabled and limited at the same time.

In Chapter 4, I aimed to address the third objective of the study, to understand the role of formal and informal institutional interactions in climate risk governance in Bhubaneswar. I sought to reconstruct how formal and informal actors strategize, interpret, adapt and transform themselves in the context of constantly emerging risks as well as development issues arising due to eviction dynamics within informal settlements. The paper highlighted an alternate way of understanding informality within cities, wherein informality is always connected to the formal system. Power relations play a crucial role in formal decision-making around informal settlements, resulting in slum dwellers being dominated by formal actors and institutions before disaster events. Disaster events however bring to light formal and informal adaptation and their temporary collaborations. The study also highlighted the governance risks from lack of or partial observation of the interplay between formal and informal institutions, through the reproduction of the notion that climatic and non-climatic risks are seemingly disconnected. In doing so, the gap between risk rhetoric and actual governance broadens further, reducing the possibility of adaptation.

Finally, in Chapter 5, I address the final objective of exploring how urban conflicts in informal settlements in Bhubaneswar interact with climate shock events to influence climate risk governance. I sought to understand the effect of two cyclonic events on climate adaptation and governance within an existing context of power relations and eviction dynamics in the slum settlements in Bhubaneswar. The findings demonstrate that recent urban regeneration attempts by local governments such as the slum redevelopment projects in Bhubaneswar are structurally positioned to engender and reinforce social conflict. Shock events can put acute pressure on governance, bringing with them forced evolutions of elements as well as spontaneous adaptations, thus increasing uncertainty. Modernist-inspired and fantasy-driven planning initiatives tend to isolate particular risks, making formal actors blind to erasing existing adaptations, opportunities, and local knowledge in dealing with multiple overlapping risks.

6.2. Contributions of the dissertation

The study contributions can be mapped in four areas of scholarly works and may interest scholars across multiple disciplines. While each of the individual articles in the previous chapters already clarifies the contributions of the specific inquiries, I will clarify some of the broad contributions of the overall findings of this dissertation to scientific knowledge.

First, this research provided a comprehensive and systematic review of the existing theoretical and conceptual landscape on southern urbanism through a toolbox that may be useful for scholars interested in southern cities and urban theory in general. The study also took up the challenge of understanding the characteristics of southern cities by mapping starting points for future work. In doing so, my research contributes to the various ongoing debates on southern urbanism, especially on the potential of recognizing the South as empirically different and potentially a new paradigm, by advocating to find a common ground and linkages with the discipline of urban planning (also see (Lawhon & Roux, 2019; Schindler, 2017b; Watson, 2009a).

Second, the empirical inquiries carried out in the study advance the existing knowledge on the emerging area of climate risk governance by providing a lens that builds on southern sensibilities (based on findings from Chapter 2). The study addressed the challenge identified in previous literature on climate governance (see Heijden, 2019; Sapiains et al., 2020) such as the existing gap between rhetoric and action and focusing beyond climate governance in northern cities. Through various inquiries, I critiqued the existing norm of global tendencies within climate governance literature by highlighting several local governances and socio-political issues that many studies overlook. In particular, my study advocates local focus on adaptation issues but also recommends scholars and practitioners to be mindful of realities around local politics, changing interactions between actors/institutions, and power relations (I focused on the issues of representation and participation of informal settlements) in the planning and governance system. I also highlighted how climate plans/policies can be used and abused by various actors depending on the context and time, and thus need to be constantly observed and reinterpreted through a reflexive lens.

Third, this study challenges the existing approaches in climate plans/policies in Bhubaneswar (and similar contexts beyond the city), that rely on modernist lenses and methodologies that force-fit resilience as an end-goal of climate planning. Further to this, the resilience and SES-inspired frameworks that rely on multi-level frameworks are often blind to existing local

urban politics. The articles in this dissertation demonstrated this blindness by highlighting how resilience and SES frameworks in climate plans in Bhubaneswar have severe weaknesses concerning the discursive construction of risk and vulnerability, formal/informal configurations, changing power relations between actors, and local conflicts around eviction dynamics. Further to this, I advance the theoretical literature on social-ecological theory through empirical support on the usefulness of observing environmental shocks beyond isolated external events towards framing them in tandem with existing social conflicts within the social system (Gruezmacher & Van Assche, 2022; Van Assche et al., 2022). This viewpoint helps us understand climate shocks beyond the seemingly apolitical framing as tipping points that can be managed through resilience and adaptation frameworks.

Finally, the dissertation provided a novel institutional perspective on the topic of informality in planning theory and practice, by advocating moving away from the conventional binary perspective based on the order/disorder frame toward a focus on formal/informal interactions as the basis for analyzing local institutional governance. The study also demonstrated through empirical work an alternate framework that builds on post-colonial theory and evolutionary governance theory to map the productive and limiting effects of formal/informal interactions in climate governance. The study demonstrated that climate adaptation is not always through formal climate plans, can happen locally through collaborations between formal and informal systems, but also without it. Recognizing informal knowledge of risk and adaptive practices can be thus crucial for local-level adaptation practices while ignoring them can induce more risks and future confrontations and conflict. The study may be useful for scholarship that is focused on the overlaps between climate issues and development priorities in cities, especially on how risk (including climate risk) is deployed through rhetoric and discourse for priorities beyond climate adaptation goals.

6.3. Limitations and recommendations for future research

As with the previous section, many of the limitations and recommendations have been outlined within the articles themselves. In this section, I shall shed light on some theoretical and methodological limitations of the study as well as provide directions for future research that may address these gaps.

The articles presented in this dissertation did not cover all aspects of the Evolutionary Governance Theory in their theoretical framework. Specifically, the empirical articles did not consider the role of psychic systems within the theoretical approach, while focusing on

social-environmental interactions predominantly through an SES approach. Consequently, the study did not include social/group/individual identities (such as caste, class and gender) as part of the framework, which may be relevant depending upon the context where future studies were carried out and if they surface as an important point of distinction in the field work. Future work can address this gap by focusing on the co-evolution between social identities, institutions, and risk/governance objects in governance.

Further to this, the articles did not place power/knowledge configurations centrally in the studies (I specifically focused on the actor/institutional configurations and discourses and the effects of their co-evolutions on the overall governance system). EGT does not argue that the governance system in its whole is faulty and oppressive, and also fails to get into the trappings of modernist planning approaches which aim to throw away the entire present context and redesign the system. These reflections may lend credence to further scholarly exploration of other aspects of governance in the EGT lens that were not explicitly captured in this study, especially to address questions on the effect of these configurations and co-evolutions on dependencies in governance, and on the existing and co-evolving power relations (and vice versa) in Bhubaneswar, and beyond.

The climate plans, through their focus on resilience help reinforce the power of already dominant formal actors and institutions in the long term (Hayoz, 2015; Hillier, 2015; Shatkin & Soemarwi, 2021). Following Flyvbjerg (1998) and applying an EGT lens, I advanced the theoretical proposition that maintaining stable power relations is not possible due to continuous change in governance contexts and that informal and formal systems are dependent on expert and local risk knowledge to ensure adaptation. In the cases in Bhubaneswar discussed across the papers, the arrival of new institutions such as the Smart city plan, Climate Action plans and Land Rights for Slum Dwellers Act changed the power/knowledge dynamics in different ways, but also had effects on other elements of governance (on other actors, institutions, identities, knowledge, dependencies and so on). For example, the formal institutions privileged technical expertise over local risk knowledge, endowing power to the technical consultants and private players (international, national, and local) in carrying out interventions in the local urban space, often through blunt instruments such as slum clearance and evictions. These institutions, on the other hand, also became tools for the existing elite actors to form coalitions (between state bureaucrats, developers, corporates, local politicians, and private consultants) as well as to advance ideas of acquisition of land for real estate development through the appropriation of resilience,

participatory planning, and affordable housing narratives. In doing so, the old and existing asymmetrical power relations between the planning authorities and slum dwellers were reinforced, contributing further to the differentiated distribution of risks including climate risks. We have to however reflect here that slum residents and activists, who are the perceived weaker groups, exist in a world where information flow is seamless. Although their organizations are not formally recognized by the formal system, there exists significant formality through self-organization within these groups that they then strategically employ within the democratic context to resist the excesses of elite power, thus impacting the asymmetry of power relations. EGT lens helps us make sense of these evolving relations in its depth, yet needs further exploration of particular relations within the governance (such as a focus on power relations alone, or relations between power/knowledge configurations and social identities around class, caste and gender which may be explored further in future work).

In alignment with EGT framing, power relations are not limited to the simplified binary relations with large social groups such as state vs non-state, formal vs informal, or government vs civil society, and so on. I talked about configurations of actors and institutions – these may be extended to configurations between actors, institutions, knowledge, discourse, social identities, and political ideology, adding to the messiness of steering governance paths in a democratic setting. Power knowledge (cf. Beunen et al. 2015; Van Assche et al. 2013) can be influenced by any part of the governance configurations, which makes it more complex to observe than the binary observations, but closer to reality than simplified observations of power relations that often prescribe more participation and communication as a goal of planning (Fischer & Forester, 1993; Forester, 1988; Healey, 2012; Innes & Booher, 2018).

Here I will also reflect on the use of EGT as the main theoretical framework in this study. While EGT is mostly interested in providing an analytic lens to understand aspects of governance, it is also interested in normative actions in the form of mapping limitations and opportunities of particular governance contexts and paths (Dix, 2015) Yet, the theoretical framework and methodological approach did not provide space to make recommendations for practice beyond broad ideas around reflexivity in future practice. Yet, EGT like many other planning theories “emphasizes the ability of planning practitioners to reflect and learn by doing” (Healey, 2006). The abstract, generalized recommendations are not always impactful in southern cities' contexts where the majority of actors within the planning and governance

system work within multiple organizational and institutional constraints, putting reflexivity a matter of personal choice for perfection rather than a priority. In this context, this work needs to be furthered by creating normative frameworks (however imperfectly) that are context-sensitive to planning practices.

I also identify three methodological limitations of this study. *First*, in the Critical Dispositive Analysis (CDA) approach used in this study, I focused more on the textual analysis of the climate plans/policies in Bhubaneswar, while the other elements of the dispositive (non-discursive practices) were not included in the CDA. This was done to maintain a reasonably smaller sample of discourse fragments as advocated by CDA scholars (Phillips & Jorgensen, 2002; Wodak & Meyer, 2009). Future work using CDA can address this limitation by analyzing non-discursive practices as the central focus of inquiries (Jäger & Maier, 2009 describe ways of doing this in their chapter in detail). *Second*, the fieldwork carried out between 2020 and early 2022 was heavily influenced by the ongoing Covid-19 pandemic. Restrictions around in-person meetings and field visits made bureaucratic spaces very opaque in Bhubaneswar city. While I reached out to many local and state politicians in Bhubaneswar, there was no response from politicians who at that time were completely focused on decisions around the pandemic. I also did not make contact with the international agencies and financial consultants which are currently involved in providing consulting support to state departments in Odisha. Consequently, the interviews do not include the perspectives of politicians and international consultants. The results presented in the articles may have been interpreted slightly differently with these additions. *Finally*, during the fieldwork within the slums, I did not focus on the intra-group variations within the slums, although this issue came up during a few interviews. Power dynamics within the slums between groups and different forms of knowledge and social identities (including the role of class, caste, ethnicity, gender, and history of migration) can seemingly play an important role in advancing the study of formal/informal interactions and can be a focus of future studies.

Lastly, following Heijden (2019) and Sapiains et al. (2020), I advocate future studies to explore comparative work between southern cities to advance the literature on climate governance as well as southern urbanism. These studies can build on existing literature, but also focus on cities beyond the large metropolitan southern cities toward mid and small-sized cities which are urbanizing faster and have limited governance steering and organizational capacity to deal with climate issues.

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Appendices

Appendix A: Semi-structured interview guide

I. Interview guide (for experts and practitioners)

Follow up and probe questions in italics

(Note: Each interview guide was adapted according to the participant and nature of discussion)

A. BACKGROUND

- 1 Can you please provide some information about your background and career until now?
2. What is your current role in the city planning and governance process in Bhubaneswar?
 - Can you describe briefly the planning process in the city (for planners/municipal officials)
 - Can you provide more information on the specific project (s) you are involved in?
3. What according to you are the main planning/governance challenges in Bhubaneswar w.r.t. climate change?
 - What according to you (or your organization) are the main climate risks and vulnerabilities in Bhubaneswar?

B. CLIMATE ACTION PLANS

1. Currently, what are the main goals concerning climate change for the city?
 - Who are the main actors/groups involved or taking lead?
2. What are your views/reflections on the past and current State Climate Action Plans?
 - What are the strengths and weaknesses of the plans?
3. What according to you are points of compatibility and divergence between the new climate plan initiatives and existing planning and governance structure in the city?
4. What changes have you observed across these plans?
 - What are the main influences behind these changes? (Why)

- Can you reflect on the impact of these changes on the broader climate goals?

C. INFORMALITY

1. What are your observations on the informality in Bhubaneswar city in the past two decades?

- Do you see informal urbanization as a challenge?
- If yes, how so?
- What are these challenges? Can you describe some anecdotes/incidents?

2. Can you describe a particular project related to climate action in the city that involves redevelopment of informal settlements?

- How did the project begin (main actors, motivation behind the project)?
- Who are the key actors/stakeholders in decision making/planning this project?
- Can you please describe your experience in this project?
- What were the main challenges/roadblocks during the execution of the project?
- How did you incorporate climate risk knowledge from the climate plans in this project?
- Was there resistance from any particular group?
- If so, what/how did the resistance unfold?
- What actions did you take?
- How did the recent cyclones Fani and Titli affect this project?

D. REFLECTIONS ON PAST AND FUTURE

1. Can you reflect on the key lessons you have learned from the climate actions in the city?

- How have recent extreme events (cyclone Fani in 2019, floods in 2013) influenced the planning decisions in the city?
- Have they changed the planning process in any way?

- If so, can you give an example?
2. What future actions need to be done according to you?
- What specific changes to the city plan or Climate Action Plan would you recommend?

II. Interview guide (for slum activists, slum committee leaders and residents in slums)

Follow up and probe questions in italics

(Note: Each interview guide was adapted according to the participant and nature of discussion)

A. BACKGROUND

1. Can you please provide some information about your background?
2. How long have you been residing in the city/neighbourhood?

B. CLIMATE RISKS AND VULNERABILITIES

1. What are the main challenges you face currently?
 - Main challenges - related to land tenure, fear of eviction/financial challenges, legal issues, municipal amenities, and services?
 - How did you deal with these in the past?
 - How are you presently dealing with these issues?
 - What do you foresee in future?
 - Did you get help from the City Municipal Corporation / State agencies/NGOs?

If so, in what ways did they help?

2. Can you share your observations on the recent extreme events (such as heatwaves, floods, and cyclones) in Bhubaneswar?
 - How did you cope with the recent cyclone/flood events in the city?
 - Are you aware of the City's actions to deal with these issues?

- What has changed since these events? Did you make any household level changes?

3. Are you aware of the Project (based on projects discussed in other interviews with planners and municipal authorities)?

- Can you describe your experience of this project?
- Who were involved? What was discussed?
- What changed over time?
- How has it impacted you/your family?

C. REFLECTIONS ON PAST AND FUTURE

1. What is your opinion on the work done by the Bhubaneswar Municipal Corporation / Bhubaneswar Development Authority in the city?

- Do you see any action by the authorities as a risk/benefit for your neighbourhood or personally?
- What in your opinion should be done to address your present challenges/risks?
- Whom do you expect action from?

2. Can you reflect on the key lessons you have learned from recent extreme events?

- How have recent extreme events (heatwaves, cyclones and floods) influenced your decisions related to your future in the city?

3. What future actions are you planning to do in your house/neighbourhood?

- What specific changes would you recommend that the Government should do?

Appendix B: Jäger and Maier’s Critical Dispositive analysis: A brief overview

Jäger & Maier, (2009) describe two main objectives of critical discourse analysis (CDA). Firstly, CDA should aim to reveal various contradictions that exist between and within discourses; along with bringing to the surface the discursive limits of the ‘said’ and ‘unsaid’. Discourses are not timeless, they assume meaning and validity only at a certain time and place. Secondly, the analyst is not outside the discourse conducting objective observations. The analyst must take a stand related to his or her values, norms and beliefs as well as ideas about social organization. These ideas are built on a Foucauldian approach to discourse; and assume to provide a concrete set of tools for researchers who are interested in conducting CDA through a Foucauldian approach.

From Discourse to Dispositive

Jäger & Maier, (2009) build from the definition of discourse by Link, (1983), who defined it as “an institutionalized way of talking that regulates and reinforces action and thereby exerts power”. So discourses are expressions of social practice, as well as have a focus on exercising certain power relations. They “institutionalize and regulate (and are regulated) ways of talking, thinking and acting” (Jäger & Maier, 2009). Discourses thus determine reality (at a certain time and place) by providing meaning to objects and subjects.

Building on Foucault’s idea of separating the discursive (language and texts) and non-discursive elements in society, Jäger & Maier, (2009) propose a new understanding of ‘dispositive’ – “the interplay between discursive practices, non-discursive practices and materializations” (Fig. 5). This is built upon the idea that as human beings we assign meanings to realities. But the material realities exist outside of the discourses that provide meaning to them (for example, a flood event occurs irrespective of various discourses around it, such as wrath of God or natural meteorological event). The dispositive is thus an ensemble of discourses (language and thoughts), non-discursive practices (action having a motive and

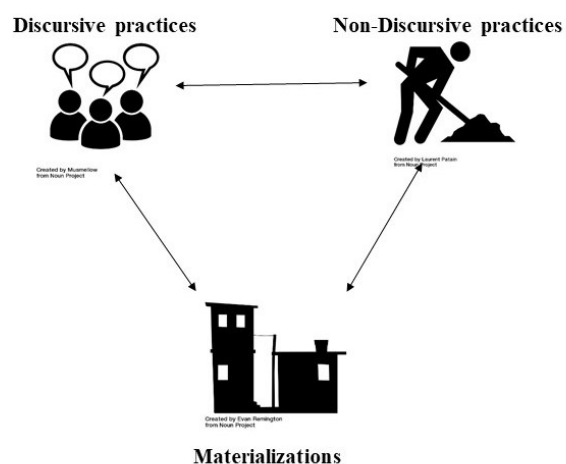


Figure 5: Broad structure of dispositive by Jäger & Maier (2009)

goal) and materializations (objects created through non discursive actions) (Jäger & Maier, 2009). This idea of action is drawn from Activity theory by Leont'ev, (1978) which has been given a discursive turn by Jäger & Maier, (2009). They contend that actions and materials are assigned different meanings by various discourses depending upon the motive, need and particular goal of the persons engaging in discourse. Drawing from this, we can say that various elements of urban space (such as street furniture) have meaning within their social and cultural context. For example, a slum dweller's house is a material reality that may be assigned different meanings by various discourses such as environmental discourse (source of pollution and health hazard); economic discourse (urban poverty); social discourse (class inequality); urban development discourse (encroachments, need for resettlement) and legal discourses (illegal, unauthorized by state).

Key concepts in dispositive analysis

In this section, I describe briefly the key concepts presented by Jäger & Maier, (2009).

Discourse Planes and sectors

Discourse planes are the “social locations from which the speaking takes place” (Jäger & Maier, 2009). Broadly these may refer to scientific discourse, legal discourse, environmental discourse, planning discourse, social discourse, architectural discourse and many more. Within a discourse plane, there exist various discourse sectors. For example, within the planning discourse, there are various sectors such as urban planning, regional planning, community planning, rural planning, spatial planning and mapping, planning bye laws and regulations, economic planning and budget, collaborative and participatory planning, institutional and management planning. In my study, the discourse plane is planning, and the specific sector is resilient city planning.

Discourse position

Discourse position refers to the “position from which subjects, including individuals, groups and institutions, participate in and evaluate discourse” (Groothuis, 2016; Jäger & Maier, 2009). Discourse positions can be identified through analysis of discourses which are usually entangled within various other discourses. For example, a text can reveal the form of governance and democracy which is being pushed through such as neoliberalism (strong individual and property rights, less collective rights), civic republican model (strong individual and strong state), civil society model (small state, strong organizations and

groups), socialist model (strong state, weak property rights) and communitarian model (strong local governance). In practice, almost all societies experience a combination of various forms of governance arrangements which results directly or indirectly into different space creation in the cities.

Discursive events

Theoretically, all events are a creation of discourses. However, a discourse qualifies as an discursive event “if it appears on the discourse planes of politics and the media intensively, extensively and for a prolonged period of time” (Jäger & Maier, 2009). These qualifiers are significant, since certain events may be in public domain more extensively than the others. In matters of planning, smaller events such as stakeholders have lesser attention than other events such as slum demolitions that are covered by the media and appear within political discourses.

Discourse Strands

Discourse strands may be imagined as ‘themes’ that are directly related to a common topic (and a sub-topic or multiple sub topics) within a discourse. Discourses are broad and abstract, while discourse strands are “at the level of concrete utterances or performances located on the surface of texts” (Jäger & Maier, 2009). Discourse strands can be analyzed in two ways: synchronic and diachronic. Synchronic analysis is focused on analyzing what is said (and unsaid) at a given point of time. Diachronic analysis, on the other hand focuses on analyzing a discourse strand across a period of time. For example, while conducting a synchronic analysis, one can analyze a discourse strands related to zoning in a master plan for a city in a specific year. Diachronic analysis of the same discourse strand will involve analyzing across various master plans of the city in the past few decades. Both approaches have their advantages. Synchronic analysis can provide in-depth information of discourse at a single time; while diachronic analysis can be helpful in comparative studies, or to identify contradictions in statements across time.

Discourse fragments

A discourse strand on one topic consists of multiple discourse fragments. Discourse fragment is the actual “text or part of a text that deals with a particular topic” (Jäger & Maier, 2009).

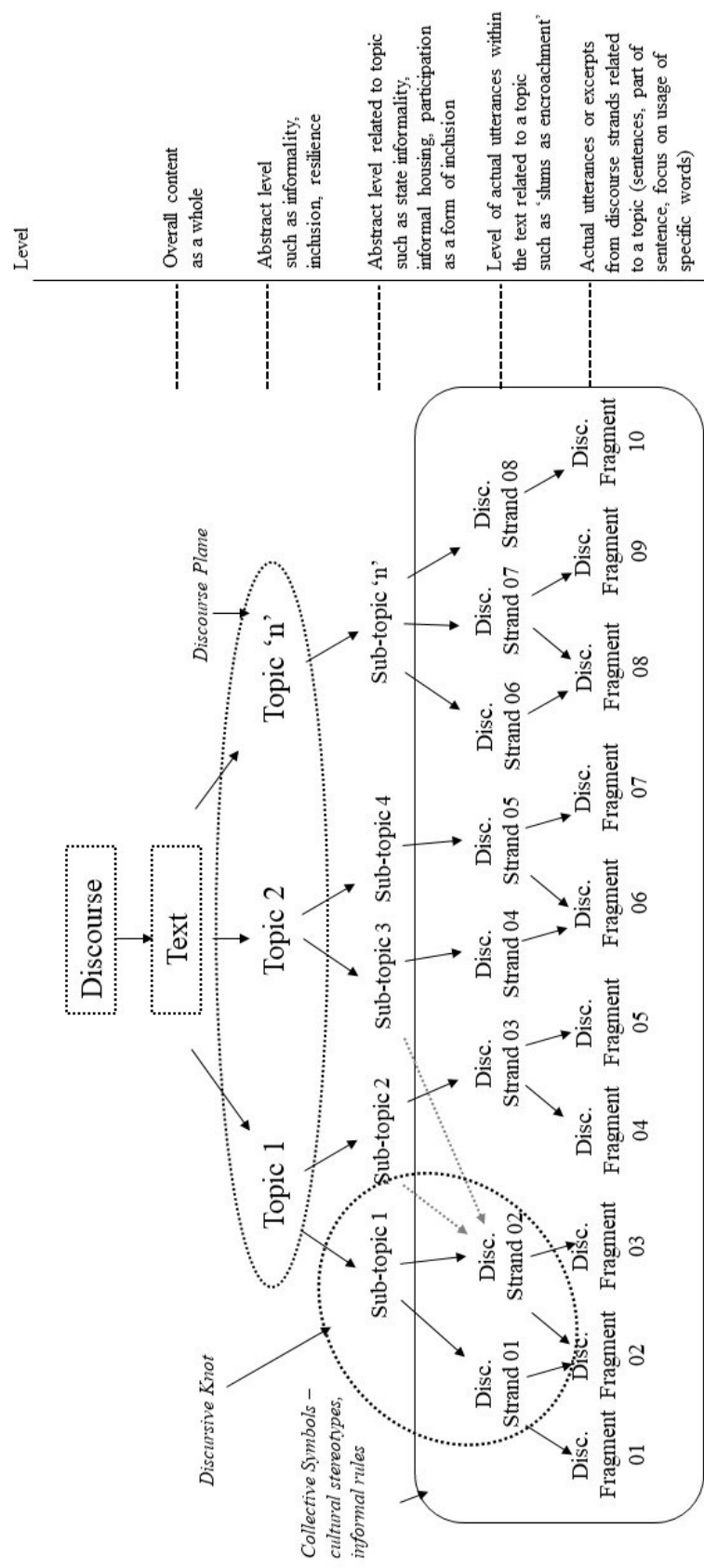


Figure 6: Graphical representation of various parts of discourse based on descriptions by Jäger & Maier (2009)

This means that a particular statement or part of a statement can be considered as a discourse fragment.

Discursive Knots

Discursive knots or entanglements refer to statements within a text where various discourse strands entangle with each other. So within a topic and sub topic, various strands and fragments often get entangled with each other. For example, the discourse on climate resilience often gets entangled with other discourses such as participatory planning, environmental justice, bottom-up governance, affordable housing, gender, and poverty.

Discursive limits and Collective symbols

Discursive limits are the limits of the statements said or written within a discourse. They refer to what “is not sayable” or what remains unsaid on a particular topic within a particular context. Discursive limits are usually characterized by rhetorical strategies such as “direct prescriptions, relativizations, defamations, allusions and implicatures” (Jäger & Maier, 2009). Although these are less applicable to plan documents directly, yet limits in plans can be analyzed by identifying certain statements that cannot be said without risking negative reactions.

Collective Symbols refer to various cultural stereotypes about a certain individual, group, space. In short they are the informal and unwritten rules that are known to all members of a society. These are usually difficult to identify, since they are not explicitly mentioned in the texts, and need to be interpreted a priori. Usually, these are in the form of metaphors or sudden breaks between statements. These become useful tools for dominant groups to marginalize and exclude certain groups within a society, since these are difficult to identify (they exist only through a historical context) and change (Reisigi & Wodak, 2009). Figure 6 shows the various parts of discourse described in this section in a graphical form.

Analytical tools

Jäger & Maier, (2009) propose three levels of analysis of a discourse. Most of their attention is given to a three level text analysis of discourse as text. The three levels, they say are to be used as a guide, are open for modifications and should not be used dogmatically. The three levels are *structural analysis*, *detailed analysis* and *synoptic analysis*.

Structural analysis refers to initial steps such as creating a database of various articles in the form of bibliographic information; identifying few main topics and sub topics related to research question; identifying few sub-topics or topics that are conspicuous by their absence in the article; as well as discursive entanglements. These steps help identify few discourse fragments for further detailed analysis. At this stage, usually the discourse position of the document can be gauged broadly. The detailed analysis consists of numerous steps such as identifying various discourse fragments; describing context (typical character of the article, author's position and status, occasion of the article etc.); surface level analysis (how is the article structured, how topics relate and entangle with each other); rhetorical analysis (argumentation style and strategy, vocabulary and style, discursive limits, collective symbolism such as use of statistics in a planning document is taken for granted, nature of references made); content analysis (connections with wider discourses such as planning, society, politics). The final level of synoptic analysis, refers to final assessment of the document's discourse position, followed by discussion on main findings from structural and detailed analysis to arrive at overall conclusions.

It should be noted here that the above steps for analysis refer to analyzing discursive practices within a dispositive. Jäger & Maier, (2009) are less prescriptive about methods to analyze non-discursive practices and materializations, which also are significant within a dispositive. For analyzing non-discursive actions, they provide flexibility to the researcher to adopt other methods such as field interviews, participatory observation or reliance on expert opinions and secondary sources to understand actions. At the same time, to analyze materializations, they contend that the researcher may rely on "own or fellow researchers' background knowledge". They propose artefact analysis as a possible approach to analyze material objects. In this study, I employ a thematic analysis of interviews to combine with CDA that are described briefly in Chapter 3.

Appendix C: Chronology of relevant disaster events in Odisha between 1999-2022

Year	Event	Human casualty
1999	Super cyclone	Nearly 10,000 deaths
2000	Drought	91 deaths
2001	Drought and heat wave	25 deaths
2002	Drought and heat wave	41 deaths
2003	Floods and heat wave	67 deaths
2004	Floods and heat wave	43 deaths
2005	Floods	Data not available
2006	Floods	105 deaths
2007	Floods	91 deaths
2008	Floods	110 deaths
2009	Floods and drought	56 deaths
2010	Floods and drought	Nil
2011	Floods	27 deaths
2013	Cyclone Phailin and floods	44 deaths
2014	Cyclone Hudhud and floods	67 deaths
2015	Drought	Nil
2016	No major event	Nil
2017	Floods	1 death
2018	Cyclone Titli and floods	59 deaths
2019	Cyclone Fani	64 deaths
	Cyclone Bulbul	02 deaths
2020	Cyclone Amphan and floods	21 deaths
2021	Cyclone Yaas	1 death
	Cyclone Gulab	No loss of life
	Cyclone Jawad	No loss of life
2022	Cyclone Sitrang and floods	No loss of life

(Source: collated from various government reports and online news articles)

Appendix D: Chronology of relevant plans and policies in Bhubaneswar/Odisha

1999	1999 Super cyclone event Formulation of Odisha State Disaster Management Authority post-1999 super cyclone
2000	Indian Meteorological Department's (IMD) capacity was enhanced with Space Technology to improve early warning systems in coastal states in India.
2001	Odisha Disaster Rapid Action Force was formulated to create training personnel for disaster management activities.
2004	Indian Ocean Tsunami event.
2005	Disaster Management Act, 2005 was passed at the national level by the Government of India. National Disaster Management Authority was formed to issue guidelines to deal with multiple hazards and disaster events Formulation of a national-level National Disaster Response Force (NDRF)
2007	Creation of a Knowledge network between IMD, the Indian Space Research Organization (ISRO), Earth System Science Observation, Central Water Commission (CWC), Geological Survey of India (GSI), and National Remote Sensing Centre (NRSC); supported by the Indian National Centre for Ocean Information Services (INCOIS) and Indian Institute of Technology's (IITs)
2008	National Action Plan for Climate Change released by the Government of India
2010	Odisha State Climate Change Action Plan released by Government of Odisha, 2010-2015
2011	Bhubaneswar City Masterplan 2031 released
2014	United Nations Development Programme (UNDP) study on Hazard Risk and Vulnerability Analysis of Bhubaneswar
2015	Smart City Mission released by the Government of India (Bhubaneswar was top of the first list of 20 selected cities) Revised Odisha State Climate Action Plan, 2015-2020
2016	Smart City Projects commenced in Bhubaneswar
2017	Land Rights to Slum Dwellers Act. 2017 passed by the Government of Odisha for the creation of affordable housing projects World Bank Report summary report released - "NLTA to support the implementation of Orissa state climate change action plan"
2018	Revised Odisha State Climate Action Plan, 2018-2023
2021	Odisha Climate Budget presented (first climate budget to be passed in India)