



## Do new towns increase disaster risk? Evidence from Kolkata, India



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### A B S T R A C T

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New towns are a key component of urban development strategies in many countries in Asia, Africa, and Latin America. New towns are often planned on the peripheries of existing cities, on land that is hazard-prone or environmentally sensitive. An important question for planners and city officials is: how does new town development affect disaster risk? The following paper explores this question through a detailed case study of Salt Lake, a new town project on the periphery of Kolkata, India. The case is based on both qualitative and quantitative data, including two original surveys (N=598 and N=414). It finds that the Salt Lake development has a significant but uneven impact on disaster risk because it drives urban development onto hazard-prone land but only provides infrastructure and services to a limited number of the township's constituents. Within the physical boundaries of the new town itself, disaster risk is lowered because of widespread and well-maintained infrastructure, quality building stock, parks and green space, and adequate service delivery. Just outside of the new town, where the vast majority of Salt Lake's low-income workforce lives, disaster risk is elevated because of higher exposure to natural hazards, poor or non-existent infrastructure, low-quality housing materials, and poor service delivery. For planners and policy makers interested in disaster risk reduction and urban resilience, the Salt Lake case highlights the need for broad and inclusive planning that considers new towns within the broader context of the city and region.

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### Introduction

New towns are a key feature of contemporary urban growth strategies in much of the developing world. New towns, or planned communities, are typically built on undeveloped or vacant land, on-sites where “there was no city before” ([The New Town Institute, 2013](#)). While some new towns like Chandigarh and Brasilia were designed as standalone cities, most are built on the edges of existing cities where land is available and affordable and where residents will have access to established labor markets, urban services, and amenities. Land in urban peripheries is often hazard prone, however, especially in riverine, deltaic and low-elevation coastal geographies, where many of the world's fastest growing cities are located ([Linnekamp, Koedam, & Baud, 2011](#); [UN-ISDR, 2009](#)). Human settlements built on peripheral land tend to be more frequently exposed to natural hazards like tropical storms and floods and to the damaging effects of global climate change. An important consideration for planners and policy makers is how

new town projects will impact disaster risk, for town residents themselves and in the larger city and region.

This paper investigates the relationship between new towns and disaster risk through a detailed case study of Salt Lake, a new town project on the periphery of Kolkata, India. I find that Salt Lake has a significant but uneven impact on risk because it guides urban development onto hazard-prone land but only provides infrastructure and services to limited number of the township's constituents. The paper is organized into four parts. First, this research situates the study in the literature on new towns and urban disaster risk. Next, it introduces Salt Lake as the context of the study and briefly describe its origins and history. Third, it analyzes disaster risk in Salt Lake and in nearby informal settlements using interview, survey and archival data. The paper concludes by discussing the implications of my findings for planners and policy makers concerned with reducing disaster risk and increasing urban resilience, in India and elsewhere in the global South.

### New towns and disaster risk

New towns are resurgent as a planning strategy in many countries in Asia, Africa, and Latin America (e.g. [Firman, 2004](#); [Hui & Lam, 2005](#)). New towns are lauded as a strategy for managing

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urban growth for a number of reasons. Most commonly, they are promoted as a mechanism for relieving population pressure on existing cities, where rapid growth and subsequent congestion degrades conditions across the built and natural environments. New towns are also attractive to city and state governments because they are frequently developed through public–private partnerships (PPP), reducing the short and long-term budget implications for city and state governments (Joshi, 2009; Sengupta, 2006). Because new towns are built “from scratch” with modern infrastructure and amenities, they often provide “global living and working standards” at lower costs than upgrading core urban areas (Wang, Kundu, & Chen, 2010: p. 330). Planned communities are also an opportunity to showcase the latest architecture, planning and design technologies. For example, Masdar City is a planned zero carbon settlement on the outskirts of Abu Dhabi intended to highlight the United Arab Emirates’ transition from “oil wealth to renewable energy leadership” (Reiche, 2010: p. 378).

Alongside the growing popularity of new towns is an emerging literature that is critical of the projects and their socio-spatial impacts. A common critique is that new towns contribute to an accelerated “splintering” of the city into spaces for the wealthy and spaces for the poor (for example, see Graham, 2000; Shatkin, 2008). Bhattacharya and Sanyal (2011) liken new town projects in India to urban flight, where aspirational urban elites exit the core cities in order to avoid conflict with the informal workforce, what Dick and Rimmer (1998) describe as the “avoidance of social discomfort” (p. 2317). This “bypass urbanism” seeks to create new zones of exclusivity where urban elites can, from a comfortable distance, enjoy the amenities of the metropolis and its informal labor force (see also Chakravorty, 2005). Similarly, Firman (2004) documents how new town developments in the Jakarta Metropolitan Region reinforce and accelerate spatial segregation. Another critique of new town development, especially in countries with decentralized urban governance, is that such projects starve the core municipal governments of much-needed revenue (e.g. Joshi, 2009). Critics also worry about the social and economic effects of rapid peri-urban development on previously existing communities. Wang et al. (2010), for instance, argue that the rapid transformations that accompany new town development disrupt agricultural livelihoods and have particularly adverse effects on lower income women, who are often forced to leave the village and work as maids in newly developed suburbs (p. 341).

This paper seeks to establish a new line of critical inquiry about new towns that has thus far been absent from the literature: what impacts do new town developments have on disaster risk? Because new town projects are often planned and developed on the peripheries of hazard-prone cities, risk of disaster is an important factor for planners and policy makers considering new towns as an urban development strategy.

### Urbanization and disaster risk

Disaster risk assesses the potential losses a person or community might suffer from environmental hazards, like floods, storms or pollution (Pelling, 2003; Turnbull, Sterrett, & Hilleboe, 2012). The concept of disaster risk helps us to plan for, respond to, cope with, or adapt to a range of natural and man-made hazards, with the goal of building safe and resilient communities. Conceptually, disaster risk has two primary components: exposure and vulnerability. Exposure measures the likelihood that a population will come into contact with an environmental hazard. Vulnerability describes the characteristics that makes a person or group susceptible to the damaging effects of that hazard and reflects their ability to access different types of resources (Wisner, Gaillard, & Kelman, 2012). A

disaster results when a vulnerable population is exposed to a hazard.

Urbanization is one of the primary drivers of disaster risk in the developing world, for at least two reasons (UN-ISDR, 2009). First, much of the urban growth is occurring in low-lying coastal zones and other hazardous geographies (e.g. Brecht, Dasgupta, Laplante, Murray, & Wheeler, 2012). In India, for instance, more than 63 million people live less than 10 m above sea-level, in fast growing cities like Mumbai, Kolkata, Chennai, and Visakhapatnam (McGranahan, Balk, & Anderson, 2007). Second, global climate change will increase the frequency, severity and extent of many environmental hazards that affect those cities, further exposing urban populations to harmful events (IPCC, 2012).

### Case study: Salt Lake, Kolkata

In India, new towns are the “new face of urbanisation” in the early 21st century (Bhattacharya & Sanyal, 2011: p. 41). The central government has laid out an ambitious agenda of building 100 new towns of one million or more people by 2020 (Wang et al., 2010). Bhattacharya and Sanyal (2011) tally more than 200 new town projects currently under development or awaiting approval, many surrounding the country’s four largest cities (Delhi, Mumbai, Kolkata and Bangalore). In Kolkata (formerly Calcutta), new towns are a central feature of the city’s urban growth strategy for the next several decades and the “most significant new spatial component” of the city’s contemporary urban reforms (Chakravorty, 2005: p. 3). The city’s current perspective plan calls for more than a dozen new town projects to be planned and developed in the city’s periphery,

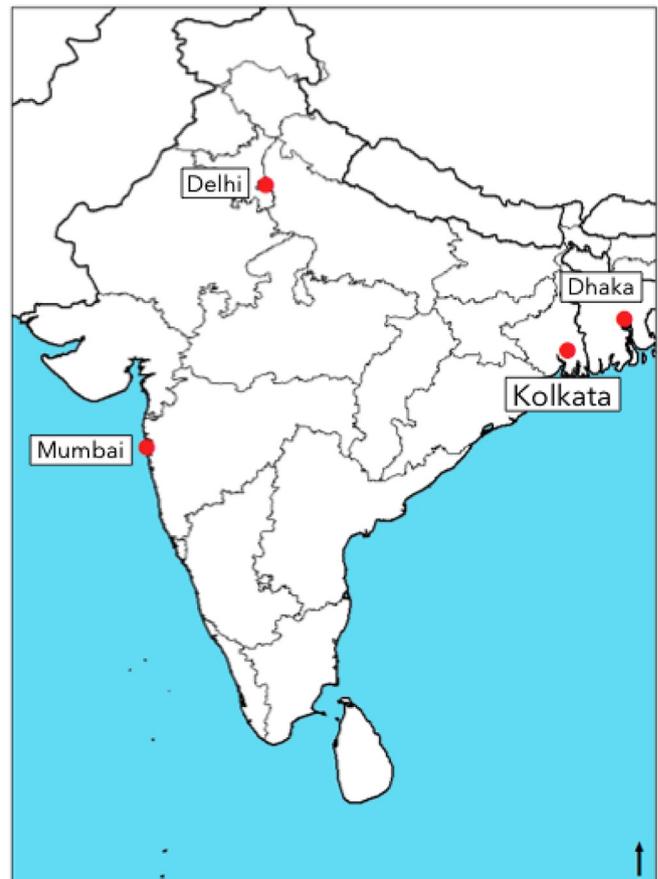


Fig. 1. Kolkata's location in India and the region.  
Source: Natural Earth GIS.

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