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ScienceDirect

Procedia Environmental Sciences 36 (2016) 154 – 161

Procedia Environmental Sciences

International Conference on Geographies of Health and Living in Cities: Making Cities Healthy for All, Healthy Cities 2016

Slum Upgrading Programs and Disaster Resilience: A Case Study of an Indian 'Smart City'

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Abstract

Analytical literature on the exact link and nature of problems faced by the urban poor due to climate change and disasters is scarce. The objective of this research is to identify slum residents' current disaster management (DM) strategies, their perceived needs, and preferences for infrastructural upgrades. Twenty-four in-depth interviews and nine focus groups were conducted with community members in seven different communities in Ahmedabad, India. One important finding was that some physical and non-physical infrastructure needs were not considered in traditional slum upgrading strategies. Implications of these findings can be considered for DM strategies and for Sustainable Development Goal #11.

Peer-review under responsibility of the organizing committee of Healthy Cities 2016

Keywords: Disaster resilience; Slum upgrading programs; Healthy cities; Urban poor; Sustainable development goals; Disaster management

1. Introduction and Background

Disasters can destroy years of effort and labour, further perpetuating poverty for the poor and most vulnerable[1-2]. Even if disasters *turn back the development clock*, they are rarely ever included within urban development strategies[3], despite the fact that the World Bank's Disaster Management Facility has stated the need to mainstream disaster mitigation into development practice[4]. Disasters can erase the benefits of development as much

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Peer-review under responsibility of the organizing committee of Healthy Cities 2016
doi:10.1016/j.proenv.2016.09.026

as poorly planned development can become a source of hazard; gaps between disasters and urban planning need to be closed and more proactive measures are needed to reduce the threat of disaster[3, 5].

The urban poor end up more directly exposed to natural hazards compared to their wealthy counterparts, even as the cities are overburdened with rapidly expanding populations and limited infrastructure and funds[6]. Urbanization and poverty frequently come up in the discussion, as stresses that amplify the risks that people face from the effects of climate change[7-8]. The urban poor are particularly vulnerable to flooding, often due to clogged drains, land subsidence, heat waves, and increased health risks. However, Baker's report on Climate Change, Disaster Risk, and the Urban Poor[6] suggests analytical literature on the exact link and nature of problems faced by slum dwellers due to housing issues in the area of disaster risk reduction is scarce. Furthermore, UN-HABITAT's The Challenge of Slums: Global Report on Human Settlement 2003 asserts that NGO's must first come to grips with what slums really are, why they exist, as the people living in slums are projected to double by 2030[9].

As such, disasters and development cannot be seen in isolation of each other and must be holistically studied. Most published research acknowledges that basic services should be provided to improve the living conditions of the urban poor, and that lack of access to these services increases their vulnerability[9-10]. One such example is slum upgrading programs (SUPs), which involve the improvement in the physical environment of an existing slum area such as water, drainage, sanitation, energy, roads, and transportation. A recent systematic review[11] on the different types of in-situ slum upgrading strategies showed limited but consistent evidence that slum upgrading can reduce incidence rates of diarrhoea and water-related expenses for slum dwellers. However, other studies[12-14] have advocated for more holistic and participatory slum improvement approaches, whereby SUPs could include social, economic, and political components. To date, SUPs have not kept pace with the growing ranks of the urban poor and the number of qualitative case studies of slum upgrading is limited[9].

Other similar case studies in informal communities in India[7] and Bangladesh[15-16] have been conducted; the authors advocate for hazard scholars to find innovative strategies to improve disaster resilience in low-income communities in developing countries. As shown, more empirical research is needed to identify the urban poor's current preparation and mitigating strategies, perceived needs, and preferences for infrastructural upgrades. Furthermore, evidence on the effectiveness of SUPs to prepare and mitigate for the effects of a disaster, to date, has not been examined; can slum upgrading be used as a mean of disaster preparation or to enable slum communities to "build back better"[17]? We will report on a study whose aim was to address the gap in literature between increasing urbanisation and the implications for the urban poor in DM plans in India and beyond.

2. Methodology

In this study, qualitative descriptive and case study designs were used to describe the participants' current mitigating strategies, their perceived needs, and preferences for infrastructural upgrades. Early disaster studies developed out of qualitative research case study designs because it allowed researchers to discover and portray multiple views of the case[18-19]. Although interviews are subjected to individual bias, recall bias, and poor or inaccurate articulation[20], they are also considered the main roads to multiple realities[19]. Furthermore, focus groups were conducted to examine if any new concepts or themes emerged when participants were in a group setting.

This research was granted approval by the Hamilton Health Sciences Research Ethics Board on May 28, 2014. Ahmedabad was chosen as the site of study due to its multi-hazard profile, which includes natural hazards such as earthquakes, floods, and cyclones. This affects around 7.2 million people who live in the urban centre, of which around 40% live in slums and informal tenements known as chawls[21-21]. To gain access to the different communities, a local non-governmental organisation - All India Disaster Mitigation Institute (AIDMI), Ahmedabad, India – and a local supervisor (from Manipal University) were contacted in the early planning stages. The study's objective, research questions, and setting were discussed to identify potential participants. The eligibility criteria included adults over the age of 18 who had their homes damaged or had to leave their homes for an extended period of time. The study's information letters were given to local advisors to use for recruitment in the study.

Twenty-four interviews and nine focus groups discussions (FGDs) were conducted over a six-week period.