

A new type of urbanization? Climate change population displacement and urban space problem in Dhaka, Bangladesh

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Abstract

A new form of urbanization backed by climate-induced migration has become one of the great concerns of developing countries like Bangladesh. Extreme flooding, droughts, frequent river bank erosion and cyclones have forced people to move from rural to urban areas of Bangladesh in large numbers. This type of forced migration - due to frequent and adverse climate hazards create density issues especially in the slum areas of large cities. While this is an issue well known by people living in these areas, few if any studies addressed it in a systematic way. This paper will use two IPUMS Bangladesh census datasets (2001 and 2011) and four Demographic and Health Survey databases from Bangladesh (2001, 2004, 2007, 2011), information of flooding and other extreme events and media coverage to quantify and analyze this problem. Firstly, using climatic data, we identify the climatic events (flooding, cyclones, and extreme drought) that affected the country during this decade of interest (2001-2011). Secondly, we use available mass media information to determine the intensity and social consequences of these events (migration in particular). Thirdly, we use the demographic data mentioned above to measure systemically the effects these events had on the population structure and density in urban areas.

Background

The environment-migration nexus is not new in human history, but quantifying the exact impact environmental changes have on human mobility is still an issue hotly debated. In particular, many recent empirical studies show that migration is directly and indirectly influenced by climate change in an increasing in an alarming way (Piguet, 2008; Laczko & Aghazarm, 2009; Maldonado et al., 2012; Science for Environment Policy, 2015; Ahsan et al., 2017).

Bangladesh is considered by many as one of the most climate-vulnerable countries of the world (Ahsan, 2015). One-third of the population is currently living in the coastal area which is less than 1.5m above sea level and millions are in danger of being forced to migrate due to flooding and land loss (Mayers, 2002; Gemenne, 2011; Walsham, 2010). The two large cyclones that hit Bangladesh during 2000-2010 Sidr (2007) and Aila (2009)), for example, have caused that the environmental migration to reach unprecedented levels (Siddiqui, 2009; Ahsan, Kellett and Karuppanna, 2016). These cyclones had taken thousands of lives and transformed millions of people into homeless and climate change refugees in the coastal areas of Bangladesh (Khaled & Jahan, 2016). The frequent and adverse impact of climate change is also responsible for the reduction in the agricultural production system as coast belt dwellers, peasants and agricultural laborers and those we are living dependent on climatic resources are displaced due to climate change related incidents in recent years (Pender, 2008; Biswas & Chowdhury, 2012; Javed, 2013).

While migration has been always considered as an outcome of economic and social interests (Bremner and Hunter, 2014) the decision of migration is complex. The theories of migration focus on the economic and social interests of the human population (Ahsan, 2014), and keeps the environment aside. However, climate change has become the ugly truth of today's world with huge climate refugees (Barnett and Adger, 2007; Warner, 2009; Findlay, 2011; Black and et al., 2012; Gemenne, 2011; Ransan-Cooper, 2015), and migration problems.

One of the biggest population issues in Bangladesh is its high population density (2900 per square mile), an issue that is even more pronounced in Dhaka (19,500 per square mile). Therefore, finding shelter, jobs and other necessities of life is a significant problem for people who are forced to migrate because of high population density and a shortage of living facilities (Ahsan, Kellett and Karuppanna, 2016; Ahsan et al., 2017). As most of the climate migrants come to Dhaka for their resettlement, the capital city is already overcrowded and is facing high density and space problems for its existing population. With high density of population, Dhaka is facing the mal-urbanization problem (Sinthia, 2013; Adri2014). Slum and space problem has increased in recent years. Nowadays even slums have become overcrowded with many families living on less than 80 sq. feet (Adri, 2014).

Data and methods

This study argues that climate change brings a new type of urbanization in Bangladesh, a forced urbanization that makes slum conditions even worse they were before. Specifically, we 1) analyze the changes in population density and structure in Dhaka that occurred after the two big cyclones Sidar (2007) and Aila (2009) hit Bangladesh and 2) changes in the level of poverty for Dhaka residents. Our main hypothesis is that the two cyclones forced a large number of poor people to move to Dhaka but this move did not improve their life conditions. For this purpose, we use two census datasets (2001 and 2011) to measure changes in the population changes and distribution. We also use several Demographic and Health Survey Datasets (2001, 2004, 2007, 2011) that do not offer the same level of detail but can give a better indication regarding the timeline of these population changes.

Our analyses will focus on comparing similar areas of Dhaka at the beginning and end of the 2000-2010 decade. For each of the areas, we will compute a poverty index and immigration 'rate' (based on the place of birth of respondents). We hypothesize that, controlling for other variables, areas in Dhaka with high immigration rate are also the ones with a high poverty rate. Our study will contribute to a better understanding of the link between climate change and migration within extremely vulnerable communities.

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