BRAC **SCHOOL OF PUBLIC HEALTH**
JAMES P GRANT
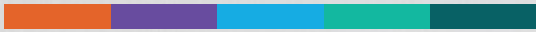CELEBRATING TWO DECADES OF ACADEMIC & RESEARCH EXCELLENCE (2004-2024)

BRAC UNIVERSITY
Inspiring Excellence

PATHWAYS TO EQUITABLE HEALTHY CITIES

W wellcome

Imperial College
London

POLICY BRIEFS:
PATHWAYS TO EQUITABLE HEALTHY DHAKA

Pathways to equitable healthy cities is a global partnership that aims to improve population health, enhance health equity and ensure environmental sustainability in cities worldwide through the co-production of rigorous evidence with policy and civil society partners in the towns in five countries.

| UK (London) | CHINA (Beijing) | GHANA (Accra, Tamale) | CANADA (Vancouver) | BANGLADESH (Dhaka) |

HEALTH CHALLENGES OF CITY DWELLERS

- Unplanned housing, toxic substances in the air and water, and lack of sanitation and safe roads expose the population of Dhaka city to health threats such as water-borne diseases, respiratory difficulties, road fatalities and non-communicable diseases.
- To reduce the inequalities and realize Sustainable Development Goals by 2030, policy movements are needed to minimize these urban health threats. Due to a lack of evidence, influencing policymakers remains a challenge.
- The information available in population census and other large-scale surveys is insufficient to modify policies. To address this matter, BRAC James P Grant School of Public Health (JPGSPH), BRAC University partnered with the Wellcome Trust through the Imperial College London, envisioning a healthy Dhaka city for all, regardless of one's socioeconomic status.

The Wellcome Trust funds our research through the Our Planet, Our Health scheme.

VISION

The vision is to provide timely, rigorous scientific evidence on how urban change and development can be directed and managed to positively impact the health of people, communities, and the planet and enhance health equity.

RESEARCH AREAS

We used diverse data sources, especially emerging open and big data, and novel methods for data integration and visualization to characterize cities' dynamic social, physical and natural environments, people's experiences of these environments, and their health. We also used interdisciplinary methods from social sciences, engineering, environmental science and epidemiology to evaluate how urban policies and programmes will impact the urban environment and population health through a lens of health equity. The Pathways Project focused on the following areas:

- **Big Data**
- **Knowledge Co-Production**
- **Health Outcomes**
- **Housing and Neighborhood**

- **Measurement and Monitoring**
- **Poverty and Inequality**
- **Transport and Mobility**
- **Water, Sanitation and Waste Management**

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Small Area Poverty Estimation in Urban Dhaka

Study Research Team: In alphabetical order
Alicia Catherine Cavanuagh, Brian E. Robinson, Khadiza Tul Kobra Nahin, Majid Ezzati, Md. Uzzal Chowdhury, M. Shafiqur Rahman, Zahidul Quayyum

BACKGROUND

A large proportion of the Bangladesh's urban population is concentrated in Dhaka, the capital city, of which 35% are poor. The average income in Dhaka is relatively higher than the rest of the country, the reason it attracts migrants is where they see opportunities to earn to increase livelihood. In contrast, poor-rich inequality is the highest in Dhaka than anywhere else in the country, and over 90% of Dhaka's urban poor lack secure tenure and cope in poor living conditions (slums) with high cost of living.

The data from national and sub-national household surveys often lack a sufficiently large sample size to generate accurate and direct estimates of poverty for smaller geographic domains in a fast-growing city like Dhaka.

OUR STUDY

We examined inequalities in slum and non-slums areas through small area estimation techniques to identify the poverty prone areas in Dhaka city using Household Income Expenditure Survey (2016) and Census data (2011). We focused on the distribution of poor versus wealthy households over three metrics that represent access to improved quality of life. To do so, we used well-established small-area estimation techniques to develop a representative dataset of the distribution of wealth in Dhaka's 110 wards. From this, we estimate the percentage of population in each ward living in poverty (bottom 20%), extreme poverty (bottom 5%), wealth (top 20%), and extreme wealth (top 5%). We examine the spatial distribution of these income classes in relation to the three quality-of-life metrics: proximity to greenspace, access to healthcare facilities, and distance from highly polluting brick kilns. The quality-of-life metrics plays major role in determining the living condition of urban dwellers in terms of socioeconomic and wellbeing perspective.

KEY FINDINGS

We found that the high numbers of slum households can be found in wards with the highest number of extreme poor or poor rather than the wards with highest proportion of extreme rich or rich. In particular, the highest density of slum households was found in Ward-19, 20, 22, 4, 3, 5, 46. Besides, ward-79, 80, 81, 82, 69, 71, and 67 these are the most densely populated areas which includes Sutrapur, Kotwali and few areas without embankment protection e.g., Manda, Sarulia. Ward- 04, 05, 07, 10, 12, 13, 42, 43, 44 have high population density with a large number of poor populations.
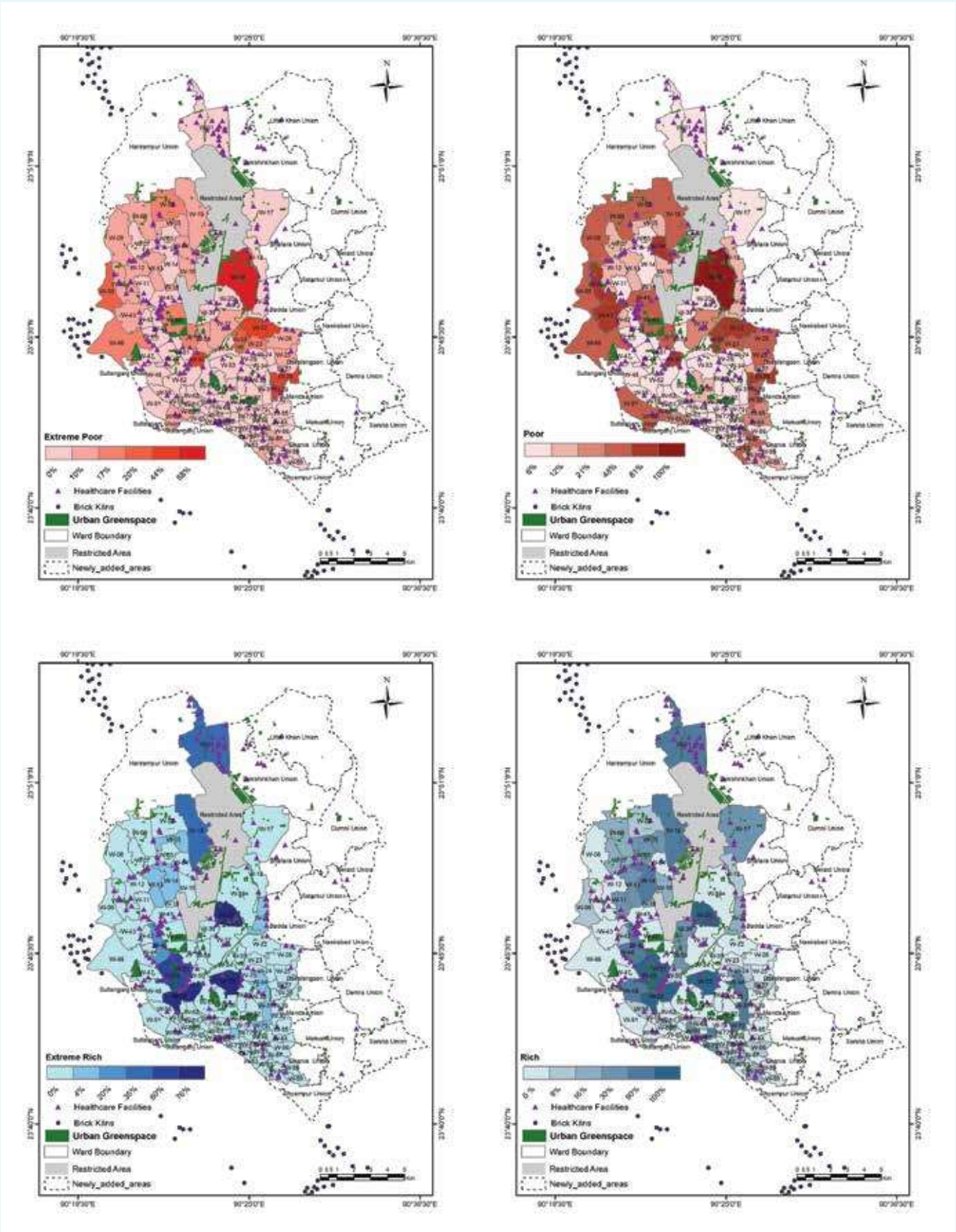
Fig. 1 Distribution of (a) extreme poor, (b) poor and (c) extreme rich, (d) rich and three quality-of-life metrics

Our study revealed that the urban poor in Dhaka have lower quality of life as they tend to live in wards with little to no access to greenspace and hospitals, and wards that are exposed to environmental pollution from brick kilns. In our analysis we have identified the greenspace zones, location of hospitals and brick kilns that are situated within or close to the city corporation area (Fig. 1). From the distribution of these features it can be observed that greenspace areas are disproportionately located in rich and extremely rich areas (Fig 1. (c, d)) as compared with poor and extremely poor areas (Fig 1. (a, b). Ward-19, the ward with the highest levels of extreme poverty has greenspace, but only two hospitals are located in that zone. Other wards (Ward- 22, 23, 28, 46, 55 etc.) with high poverty have access to no hospitals at all. The brick kilns are situated disproportionately close to poor and extremely poor areas in Ward-08, 09, 10, 43, 46.

POLICY RECOMMENDATIONS

With growing urbanization, changing landscape, and frequent relocations of the population, such exercise are useful tool for policy formulations. To effectively tackle poverty and inequality in Dhaka, it is critical to recognize the limitations of present urban planning efforts and shift to more specialized approaches that reflect Bangladesh's social, political, and economic reality. This involves the establishment of a well-coordinated planning framework that accelerates activities while reducing division among institutions and conflict. Furthermore, community engagement is crucial assuring the active participation of local citizens, NGOs, and civil society organizations throughout the planning process, from development to implementation. Initiatives aimed at establishing inclusive and well-organized urban areas should focus on territorial division and the growth of slums, as well as pressing challenges like traffic congestion and the lack of regulation. With a focus on sustainable urban development tactics and fair distribution of opportunities and resources, Dhaka can lead the way to a more prosperous and just urban environment for all of its residents.

PUBLICATIONS FROM THE PROJECT

PEER REVIEWED JOURNAL ARTICLES

1. An overview of progress towards implementation of Solid Waste Management policies in Dhaka, Bangladesh
    Author: Delufa Tuz Jerin, Hasna Hena Sara, Marzuka Ahmad Radia, Prianka Sultana Hema, Shahriar Hasan, Salma Akter Urme, Camilla Audia, Md Tanvir Hasan, Zahidul Quayyum
    Journal: Heliyon
    Date of Publication: Feb 22, 2022

2. Synthesizing the links between secure housing tenure and health for more equitable cities
    Author: Jill Baumgartner, Judith Rodriguez, Frans Berkhout, Yvonne Doyle, Majid Ezzati, George Owuso, Zahidul Quayyum, Bethlehem Solomon, Meghan Winters, Gary Adamkiewicz, Brian E. Robinson
    Journal: Wellcome Open Research 2022
    Date of Publication: Jan 2022

3. Dhaka landfill waste practices: addressing urban pollution and health hazards.
    Author: Urme SA, Radia MA, Alam R, Chowdhury MU, Hasan S, Ahmed S, Sara HH, Islam MS, Jerin DT, Hema PS, Rahman M.
    Journal: Buildings & cities
    Date of Publication: July 2021

4. Dhaka city water logging hazards: area identification and vulnerability assessment through GIS-remote sensing techniques
    Author: Rafiul Alam, Zahidul Quayyum, Simon Moulds, Marzuka Ahmad Radia, Hasna Hena Sara, Md Tanvir Hasan & Adrian Butler.
    Journal: Environmental Monitoring and Assessment
    Date of Publication: April 2023

5. Loops and Building Blocks: a Knowledge co-Production Framework for Equitable Urban
    Health Author: Camilla Audia, Frans Berkhout, George Owusu, Zahidul Quayyum, Samuel
    Agyei-Mensah Journal: The Journal of Urban Health
    Date of Publication: June 2021

6. A quantitative assessment of natural and anthropogenic effects on the occurrence of high air pollution loading in Dhaka and neighboring cities and health consequences
    Author: Riaz Hossain Khan, Zahidul Quayyum & Shahanaj Rahman
    Journal: Environmental Monitoring and Assessment
    Date of Publication: November 2023

BOOK CHAPTER

1. Spatiotemporal Variability of Urban Greenspace and Surface Temperature in Dhaka City: A Public Health Aspect
    Author: Khadiza Tul Kobra Nahin, Hasna Hena Sara, Krishna Rani Barai, Zahidul Quayyum, and Jill Baumgartner
    Name of Book: The Empathic City: An Urban Health and Wellbeing Perspective
    Publisher: Springer
    Date of Publication: July 2023

NEWSPAPER ARTICLES

1. Effective solid waste management can alleviate the severity of the waterlogging situation in Dhaka (Blog)
    Author: Rafiul Alam and Hasna Hena Sara
    Newspaper: Dhaka Tribune
    Date of Publication: October 2021

2. Taking the bus as a girl in Dhaka: A view of Dhaka city's broken commuting system (Blog) Author: Sabrina Mustabin Jaigirdar, Zahidul Quayyum
    Newspaper: Dhaka Tribune
    Date of Publication: June 7, 2022

3. Prothom Alo featured the school campaign of Public Engagement on Waste Management and Waterlogging in Dhaka City.
    Title: "eR®e®0 ícbvq maªZbZv evova℗Z b℗kbvj evsj v nvB0 aj̃ i i ℗wj"
    Newspaper: Prothom Alo
    Date of Publication: March 22, 2023

BLOGS

1. Why cities need to preserve green space: A case study of Dhaka city (Blog)
    Author: Khadiza Tul Kobra Nahin, Hasna Hena Sara, Dr Zahidul Quayyum Website for Blogs: Pathways to Equitable Healthy Cities BLOG.
    Date of Publication: Jan 2022

2. A Knowledge Coproduction Workshop for an Equitable Healthy Dhaka City Author: Sabrina Mustabin Jaigirdar, Zahidul Quayyum
    Website for Blogs: BRAC University
    Date of Publication: October 16, 2022

3. The complexities of the urban development: An insight into the policy dimensions Authors: Sabrina Mustabin Jaigirdar, Zahidul Quayyum
    Website: Pathways to Equitable Healthy Cities
    Date of Publication: Nov 29, 2022

4. **Celebrating Student Initiatives**: Certificate Giving Ceremony for Waste Management Champions
    Author: Sabrina Mustabin Jaigirdar, Zahidul Quayyum
    Website: Pathways to Equitable Healthy Cities
    Date of Publication: JANUARY 23, 2024

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