# **Draft Report**

# **A Knowledge Co-production Workshop for**

# **an Equitable Healthy Dhaka City**

# **Addressing the issues, concerns, and potential ways to control Air and Noise Pollution in Dhaka City**

# **28th April 2023**

# **Prepared By**

# **BRAC James P Grant School of Public Health, BRAC University**

**Introduction**

BRAC James P Grant School of Public Health (BRAC JPGSPH) is conducting a research project titled "Pathways to Equitable Healthy Cities (PEHC)." Our partner Wellcome Trust, through Imperial College London, envisions healthy cities for all and is implementing this project across six different cities (Beijing, Dhaka, Accra, Tamale, London, and Vancouver) in five countries (China, Bangladesh, Ghana, United Kingdom, and Canada) worldwide. This research project envisions advancing sustainable urban development that supports healthier lives for all. The research programme is focused on inflicting policy changes for a healthier and sustainable Dhaka city through reviewing available data across several sectors (housing, air, noise monitoring, transportation, water, sanitation, waste management, etc.), policies, and its health outcomes on city dwellers. One of the project's main objectives is to develop and refine relevant sectoral policy scenarios in knowledge co-production. This is done through a systematic and iterative process of multi-partner engagement to identify actionable technical and policy options for equitable, sustainable, and healthy urban development.

To develop and refine relevant sectoral policy scenarios in knowledge co-production, BRAC JPGSPH held three days of knowledge co-production workshops on Ambient Lighting, Air and Noise Pollution in Dhaka City, and Gendered Accessibility and Transport on the 27th, 28th, and 29th of September 2022. The workshops aimed to jointly develop an action plan for co-producing knowledge on these issues, create and support existing links across institutions, researchers, and partners and identify and develop concrete opportunities for future scenarios.

The workshop on "Addressing the issues, concerns and potential ways to control Air and Noise Pollution in Dhaka City," held on 28th September 2022, was inaugurated with a welcome speech from Dr. Zahidul Quayyum, Professor (Health Economics), BRAC JPGSPH, BRAC University and Country Lead of PEHC. He provided an overview of the PEHC project and discussed the workshop's objectives. This was followed by a speech from Dr. Franciscus Guustaf Berkhout, Professor of Environment, Society & Climate, Department of Geography, King's College London. He spoke about the relationship between people's health and urban facilities and emphasized the significance of knowledge co-production in designing the city and improving the urban health system. The participants then introduced themselves and shared information about their professional fields.

Senior-level policymakers and researchers from the South City Corporation, Rajdhani Unnayan Kartripakkha (RAJUK), Bangladesh Road Transport Authority (BRTA), Bangladesh Meteorological Department (BMD), Bangladesh Poribesh Andolon (BAPA), Bangladesh Youth Environmental Initiative (BEI), Health Service Department, Civil Surgeon Office Dhaka, Dhaka Transport Coordination Authority (DTCA), Dhaka University, Harvard University, King's College London and Imperial College of London participated in the workshop and discussed and addressed the issues and concerns of Air and Noise Pollution in Dhaka City and recommended a few solutions to those problems.

**Poll Everywhere 1- Emerging issues around air and noise pollution**

After the introduction, the workshop started with a poll asking the stakeholders about their experiences that they have recently encountered regarding air and noise pollution in their job or daily life. Through Poll Everywhere, the web-based audience response system, the participants shared their opinions and experiences on the same. As they discussed, responses were entered into the live application of 'PollEverywhere'. The polling revealed the following cross-cutting issues and concerns regarding air and noise pollution in Dhaka city:

**Air Pollution:**

1. The participants emphasised the open dumping of waste resulting in air pollution along with bad odour and attracting the increase of flies in the roadsides and neighborhoods.
2. Road construction and construction sites near residential areas are not completed on time, causing dust and other problems for people.
3. Tailpipe emissions affecting people
4. The suffering from air pollution is increasing at ward levels, mainly affecting the children, and dust-related allergies are rising.
5. Experienced poor air quality on the streets of the Gulshan area in Dhaka City
6. The sight of smog covering Dhaka city when landing at the airport
7. Thoughts about getting a Bicycle to work or buying an electric vehicle

**Noise Pollution**

1. Lack of quiet, peaceful areas in the city, even when sleeping.
2. Earphones in the ear while crossing roads.
3. Excessive sound from construction sites.
4. A large number of vehicles on the roadare honking. Participants expressed their concerns over the use of high-decibel horns.They also shared that a debate is ongoing between importers and the government over lowering the decibel of horns on motorbikes, private automobiles with loud horns, and ambulance horns.
5. Recent power cuts and load shedding of electricity supply have increased the use of generators, causing sound pollution.
6. Hearing problems, and various health effects, particularly on the elderly and children.

**What do research and scientific evidence say!**

Riaz Hossain Khan, Senior Research Fellow at BRAC JPGSPH, BRAC University, presented"**An Overview of Noise and Air Pollution Policies in Dhaka City."**He focused on the land use types influencing the pollution level and Dhaka being the highest average noise frequency, about 119 decibels, significantly exceeding the standards. Among the 61 most populated and important cities worldwide, noise pollution is the highest in Dhaka. While focusing on the policies, he emphasised the Environmental conservation act 1995, Sound pollution control regulation 2006, Building construction: (Building Regulations 2008), and Import policy order 2015-18. He stated that there is a strict restriction on maintaining permissible noise levels for motor vehicles (85 dB), and a ban has been imposed on the import of horns above 75 dB to control noise pollution.Also, no equipment that produces noise beyond the permissible noise level shall be operated for more than 5 hours, not after 10 pm **(Sound pollution control regulation 2006).** For residential areas, the permissible noise level is 55 decibels in the daytime and 45 decibels during the nighttime. For any construction site inside a residential area, no disturbing noise can be created from 6 pm to 6 am, and at any time of the day or night, no stones or pits shall be broken on the site **[Building construction: (Building Regulations 2008)]**. In industrial areas, the highest noise levels are permissible under the rules- 75 decibels during the daytime and 70 decibels during the nighttime **(Sound pollution control regulation 2006).**

He also described the types of air pollutants, their criteria and heavy metals. His presentation also included the timelines of the policies of the Environment, namely the Environmental Conservation Act 1995, Environmental Conservation Rules 1997, Brick Making and Kiln Installation Regulation 2013, Import Policy Order 2015-2018, National Environmental Policy 2018, Air Pollution Prevention Guidelines 2019, Brick Kilns Regulation – 2020 and Environmental Protection Rule 2021 (Amendment).

The presentation generated a useful follow-up discussion in these contexts. In response to the participant's question on how noise pollution fluctuates with the seasons, Riaz Hossain Khan explained that when construction grows in metropolitan areas during the winter, so does noise pollution. Construction work slows down during the monsoon, resulting in reduced noise pollution. During the lockdown, noise pollution decreased as people stayed inside their homes. He also noted that despite having autorickshaws using compressed natural gas, the air pollution of Dhaka city is not reducing since the number of motorbikes is rising, and these are not environmentally friendly, thus contributing to greater air pollution.

Participants also suggested limiting the honking decibels to 85 dB and stated that more information flow, institutional coordination, and collaboration are needed.

Some stakeholders discussed the Clean Air Act, about which there had been widespread consultation and for which there was public support, failed to be adopted by the designated ministry in 2019. Instead, a rather toothless set of Clean Air Rules was implemented in Sept 2022. The difference is that legal challenge and fines (enforceability) is absent for the Rules. The explanation for this political failure is related to opposition from industry, especially industrial plants, brick kilns and the construction industry.Despite this setback, there continues to be an active interest in the issue and awareness of the health risks. Many of the people in the room were frustrated by the inability to implement existing policies and guidance, but things are improving (licensing of vehicles and drivers, for instance).They also suggested Dhaka Metropolitan Police be treated as a stakeholder and considered a part of the urban design regarding air and noise pollution.

Stakeholders also shed light on the lack of awareness among people and how easy it is for individuals to get away with violating the law.There are plenty of regulations and policies in place. The problem is instilling a feeling of accountability in individuals. Habitual transformation is essential to persuade people to adhere to rules and regulations.

Stakeholders also brought up the issue of negligence in following the building codes. Increased use of generators in buildings and hospitals is contributing to noise pollution. Moreover, Dhaka's excessive population density adds to the city's air and noise pollution.

Thus, stakeholders concurred that greater public support and awareness are required. Cooperation between governors, policymakers, and stakeholders is crucial.

**Poll Everywhere 2- What is the current policy debate around air & noise issues in Dhaka city?**

After the presentation on the overview of Air and Noise pollution, the participants were asked to share their views on the current policy debate around air and noise issues in Dhaka city through the Poll Everywhere application. Their views and opinions are as follows:

1. Legal and practical knowledge is required. A policy is required to enhance public knowledge of current policies that reflect health threats and concerns.
2. Participants suggested collecting air and noise monitoring data at a higher spatiotemporal resolution.
3. Participants were concerned about the Department of Environment's (Ministry of Environment, Forestry, and Climate Change) inability to implement current laws and regulations on air and noise pollution.
4. Lack of implementation of the policies, stronger enforcement and active participation are required, especially on a personal level: If horns on cars can go up to 75 dB. Still, residential areas have a limit of 55 dB, and then a vehicle that uses its horn in a residential area should immediately be fined. A policy implementation guidance might be beneficial in such cases.
5. Lack of Monitoring: Participants questioned the testing of vehicle emissions and sound levels regularly (not just private vehicles but also bus fleets). And how these results of the tests were used.
6. Obstacles to passing Clean Air Act: Clean Air Act 2019 was drafted, but it's been shelved for a long time and has not been passed in parliament; rather, Clean Air rules were adopted. Participants questioned the politics that prevented it from being passed in parliament.
7. Source management is crucial: cleaner vehicles, construction site management, and regulations of brick kilns.
8. Policy implementations require coordination; how and who will monitor the policies.
9. Land use zone debate: people are cutting down trees for development, greeneries are reducing, and all waterbodies are filling up
10. Participants queried if the policy could support the bottom-up innovation in electrifying two and 3-wheelers in Bangladesh.
11. Participants also emphasised the need for a unique calculation methodology to identify air pollution, mainly the effect of greenhouse gas, to achieve SDG goal 13.

**Brainstorm and Co-produce Knowledge:**

This session was key for the workshop and focused on group discussion around the topics of air and noise pollution, (1) Major sources of air and noise pollution in Dhaka (2) Issues of policies and concerns (3) Health effects of pollution. This activity aimed to create a space for stakeholders to discuss the issues and concerns related to the three areas. Participants agreed to follow the principles of not interrupting, listening quietly and speaking openly.

**Group 1**

The first group comprised participants from the Dhaka Transport Coordination Authority, Ministry of Road, Transport and Bridges, Dhaka South City Corporation and Harvard University. They discussed the major air and noise pollution source and suggested the following solutions in each case.

**Table 1:Major source of air and noise pollution in Dhaka**

|  |  |
| --- | --- |
| **Major Issues (Sources)** | **Solutions** |
| Vehicle (exhaust, mud and dust from wheels, low quality of fuel, horn, body) | * Standardise the vehicle and fuel. * Maintaining proper fitness * Introduce the use of noise barriers. * Follow the existing rules |
| Construction sites (Roads and buildings, cutting down of roads, transportation of construction materials) | * Work during the day * Ensure construction-related training. * Follow the building codes |
| Solid waste (household waste, market, Landfill) | * Proper waste management system |
| Brick kiln (trans-boundary) | * Stop using traditional brick kilns and encourage the use of building blocks |
| Industry waste, Landfill, Agricultural Waste, cooking (indoor) | * Green technology and green fuels * Use of noise barriers |
| High volume music, concert, use of loudspeakers in public gatherings | * Raise public awareness & perceptions |
| Transboundary Pollution  (Pollution coming from countries and cities sharing the boundary line mainly by wind flow direction.) | * Collaborative works between neighbor countries |
| Increased use of Air conditioner and Electric Generators used in buildings during power cuts | * Rationing the use of AC and stop unnecessary use * Introduce the use of canopy in case of generators |

The group highly emphasized raising public awareness about the costs and benefits of reducing pollution and changing our mindset and attitude.

Stakeholders from the other groups also contributed to these concerns about transboundary air pollution and emphasized the meteorological effects of pollution, and described how the shift in wind direction from the Bay of Bengal to the north increased air pollution in the winter.

**Group 2**

The group constituted participants from the Bangladesh Meteorological Department, Bangladesh PoribeshAndolon (BAPA), Ministry of Environment, Forest and Climate Change, RAJUK and Imperial College of London. They focused on the policies and concerns regarding air and noise pollution and suggested solutions.

**Table 2: Issues on policies and concerns identified during the group discussion**

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| --- | --- |
| **Air pollution issues/ concern** | **Noise pollution issues/ concern** |
| i. Pollution levels differ depending on the industry. Different industries should be classified in order to take appropriate action. Policies are necessary for this.  ii. Construction sites and different mega projects cause high pollution  iii. Motorbikes do not abide by the emission standards  iv. Lack of policies to control pollution from private cars  v. Mixed mode of the vehicle on the same route results in higher fuel consumption for high-speed cars  vi. Lack of proper instruments and skilled personnel for monitoring emissions properly  vii. No justification for the weak implementation of policies | i. Implementation gap exists between complying by noise restrictions and noise standard limits, such as unneeded horns on roadways, and the same individuals being more vigilant in Cantonment areas.  ii. Excessive use of hydraulic horns  iii. Manual system or no technology to detect sound level on roads  iv. Challenges in maintaining building codes and instructions regarding noise levels  v. Lack of urban design and planning (high-rise buildings create echos)  vi. Lack of environment-friendly places / Green space/ eco-park- problem  vii. Lack of promotion/ advertisement on laws of noise pollution |

**Table 3: Solutions for the Issues on policies and concerns**

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| **Possible solutions to reduce air and noise pollution** |
| ● Controlling the vehicle limit |
| ●Good practice of penalty |
| ● Separate lane for motor vehicles and rickshaws |
| ●Policy for car control, encouraging public transport and bicycling, and developing walkable footpaths |
| ●Plan and Implementation of noise barriers |
| ●Creating open space and water body |
| ●Strong monitoring government body which must be well equipped to monitor the different sources of pollution |
| ●Awareness and self-motivation among public |

The group also discussed the challenges of revising environmental rules, how investors put pressure on their implementation and suggested coordination and cooperation among authorities.

**Group 3**

The group focused on the health effects of air and noise pollution. The discussion noted that more and more individuals are being treated in healthcare facilities for respiratory ailments, although the particular cause is often unknown. These diseases have grown over time and may be caused by air pollution. They also stated that individuals are unaware of the negative impacts of noise pollution.

The group identified the following major issues and suggested some solutions to those.

**Table 4:Health effects of pollution**

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| **MAJOR ISSUES** | **SOLUTIONS** |
| * Treating more patients with Asthma and Chronic obstructive pulmonary disease (COPD), the secondary cause of air pollution. Also, hampering the cardio-vascular system * More middle-aged people are coming with respiratory diseases. * The health and economic burden are increasing because of noise and air pollution. * Bangladesh is being developed. So, often the discussion around pollution is compromised for the sake of development | * Further research on quantifying health impact and economic burden * We need more youth and student-based activism as it has been seen as effective in countries like the UK. * Focus on pollution source management |

The group also stated that there are available data on the harmful effects of air and noise pollution. Government officials are keeping the record. The public is aware, yet rules and regulations are not being followed. Being educated/informed and being aware is not the same thing. Some civil society members want to speak out but are intimidated by influential business people.

Participants also highlighted the lack of accountability in policies and discussed how population growth contributes to air and noise pollution. They suggested decentralisation and putting greater emphasis on source management.

After the plenary discussion of the problems and solutions, the Secretary of Bangladesh Road Transport Authority said they are focusing on ensuring vehicle fitness and intend to ban all unfit vehicles within the next three years. No motorbikes will be allowed on the road without a driving license starting in January 2023. Ideally, the laws will be more structured to ensure these rules and regulations.

**Reflections and Conclusions**

There is widespread awareness of the problem of air pollution in the city, substantial coverage in the national press, and engaged public debate. Informed opinion is well aware that Dhaka ranks towards the top of global rankings of cities with poor air quality. They also recognize that the situation is complex (seasonality and transboundary pollution plays an important role).

What is missing is a capacity to conduct spatially and socially resolved health impact projections based on air quality data. Routine air quality monitoring happens but from just three sites. Therefore, making an evidence-based case about health effects (morbidity and mortality in the city) remains challenging.

More of a stretch may be linkage to patient data on respiratory disease. COPD rates have increased in the city, now representing about 70% of patients in respiratory units, according to a doctor at the workshop. For Dhaka, good patient data is available. If it were possible to link local air quality data to patient outcomes data in the future, that would provide another essential contribution to the debate.

The workshop created an opportunity to build relationships between policy professionals, government authorities, researchers, and practitioners around Dhaka's Air and Noise Pollution. Holding workshops allowed people to reflect, learn, and connect between and across topics.

At the end of the workshop, Professor Quayyum thanked the participants for their time, effort, and active participation. He emphasized that this exercise, discussion, and knowledge co-production will help ensure research findings are embedded in current Dhaka City issues and assist key stakeholders and policymakers develop policies, rules, and regulations.

**Annex:**

**Annex 1: Program schedule**

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| **PROGRAM SCHEDULE (SESSIONS AND LUNCH)OGRAMSCHEDULE(SESSIONSANDLUNCH)** | |
| 9:30 am-10:25 am | Introductionsandwelcome |
| 9:30am –10:00am | Registration |
| 10:00am–10:05 am | WelcomeRemarksbyDrZahidulQuayyum,Professor(HealthEconomics)andDirectorof  Research,BRACJPGSPH,BRACUniversity |
| 10:05am -10:10am | WelcomeRemarksbyDrFranciscusGuustafBerkhout,ProfessorofEnvironment,Society&Climate,DepartmentofGeography,King'sCollegeLondon |
| 10:10am -10:25am | IntroductionoftheDistinguishedGuests/Participants |
| 10:25am– 10:45 am | Emergingissuesaroundairandnoisepollution  Couldyoupleaseshareasigniﬁcantexperienceyou'verecentlyencounteredregardingairand  noisepollutioninyourjobordailylife? |
| 10:45am- 10:55am | Presentation  Overviewof theAirandNoisePollution,includingExistingPoliciesinDhakaCity,by  RiazHossainKhan,SeniorResearchFellow,BRACJPGSPH,BRACUniversity |
| 10:55 am- 11:15 am | ImmediatePoll:whatisthecurrentpolicydebatearoundair&noiseissuesin Dhakacity?  OpenDiscussion |
| **Coffee Break 15 mins** | |
| 11:30am-12:10pm  11:30am -11:50am  11:50am -12:10pm | Group Discussion:Structured Brainstorming  • Discussing the issues and concerns of the topics  • Share: What has your group heard from the stakeholders?  (Discussion following the shared content) |
| 12:10pm- 12:55pm  12:10pm -12:35pm  12:35pm -12:55pm | Group Discussion: Can weconceptualise solutions?  Let's envisage an air and noise-pollution-free DhakaCity in the next ﬁve years.  Share: Plenary discussionguided by each station's "rapporteur." |
| 12:55pm- 01:00pm | ConcludingRemarksandVoteof ThanksbyDrZahidulQuayyum, Professor(HealthEconomics)andDirectorofResearch  BRACJamesPGrantSchoolofPublicHealth,BRACUniversity |
| **Lunch** | |

**Annex 2: List of the participants**

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| **SL** | **Name** | **Designation** | **Organisation Name** |
| 1 | ***AndrioDrong*** | *Deputy Secretary (Environmental Pollution Control-1 Branch)* | Ministry of Environment, Forest and Climate Change |
| 2 | **Mr. Md. Haider Ali** | General Manager (Transport) | Dhaka South City Corporation |
| 3 | ***MahfujaAkter*** | *Town Planner (ongoing duty)* | Rajdhani UnnayanKartripakkha (RAJUK)  (Capital Development Authority of the Government of Bangladesh)) |
| 4 | **A. T. M Kamrul Islam Tang** | Joint Secretary | Bangladesh Road Transport Authority |
| 5 | **Kawsar Parvin** | Deputy Director | Bangladesh Meteorological Department |
| 6 | **Saurav Dey Shuvo** | *Lecturer* | Department of Meteorology, Dhaka University |
| 7 | ***Prof. Dr. Ahmad Kamruzzaman Majumder*** | *Professor and Chairman, Department of Environmental Science & Founder and Director, Center for Atmospheric Pollution Studies (CAPS) and Join Secretary BAPA* | Bangladesh PoribeshAndolon (BAPA) |
| 8 | **Shamir Shehab** | Strategy and Organisational Development | Bangladesh Youth Environmental Initiative |
| 9 | **Dr. Abul Fazal Md. Sahabuddin Khan** | Civil Surgeon, Dhaka | Health Service Department |
| 10 | **Md. Abul Khair** | Traffic Enforcement Officer | Dhaka Transport Coordination Authority, Ministry of Road Transport and Bridges |
| 11 | **Md. Mamunur Rahman** | Pollution Control Officer | Dhaka Transport Coordination Authority, Ministry of Road Transport and Bridges |
| 12 | **Md. Bazlur Rashid** | Meteorologist | Bangladesh Meteorological Department |
| 13 | **Dr MD. Waliullah** | Medical Officer, Civil Surgeon | Civil Surgeon office, Dhaka |
| 14 | **Dr Zahidul Quayyum** | Professor | CENTRE OF EXCELLENCE FOR URBAN EQUITY AND HEALTH (CUEH), BRAC JPGSPH< BRAC University |
| 15 | **Judith Rodriguez** | Senior Research Associate | Harvard University |
| 16 | **Frans Berkhout** | Professor | King's College London |
| 17 | **Aruna Sivakumar** | Director, Urban Systems Lab | Imperial College of London |
| 18 | **Riaz Hossain Khan** | Senior Research Fellow | BRAC JPGSPH |
| 19 | **Sabrina Mustabin Jaigirdar** | Deputy Research Coordinator | BRAC JPGSPH |
| 20 | **Md. Kamrul Hasan** | Research Associate | BRAC JPGSPH |
| 21 | **KhadizaTulKobraNahin** | Research Associate | BRAC JPGSPH |
| 22 | **Anisur Rahman Bayazid** | Senior Research Assistant | BRAC JPGSPH |
| 23 | **JannatunTajree** | Research Assistant | BRAC JPGSPH |
| 24 | **SwaksarAdhikary** | Research Assistant | BRAC JPGSPH |
| 25 | **TanbiTanayaSarker** | Research Assistant | BRAC JPGSPH |