## BHARGAV KRISHNA, DrPH

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Researcher and non-profit co-founder with over 10 years of experience in public health, environmental policy, and sustainable development. Author of more than 40 publications, including journal articles, book chapters, reports, and opeds. Experience in multi-disciplinary research, policy development and analysis, organizational strategy, and advocacy.

## AREAS OF STRENGTH AND EXPERTISE

- Strategy development
- Project management
- Environmental epidemiology
- Data analysis
- Institutional capacity
- Creating partnerships

- Institutional governance
- Policy research and analysis
- Health policy

#### **WORK EXPERIENCE**

## SUSTAINABLE FUTURES COLLABORATIVE, New Delhi, INDIA

September 2023 – Present

## Co-Founder and Fellow – Environmental Governance & Policy

- Co-founded and led strategy for the establishment of an independent research organization focused on research at the frontier of climate change, energy transitions and environmental policy
- Led the environmental governance and policy vertical, carrying out research on environmental regulators, air pollution policy, and the impact of air quality and climate change on health
- Co-led organizational management including finance, compliance, and donor engagements

## CENTRE FOR POLICY RESEARCH, New Delhi, INDIA

September 2021 – August 2023

## Fellow, Initiative on Climate, Energy and Environment

- Leading accountability research on the impact of air pollution and climate policies on health in India
- Evaluating the performance of State Pollution Control Boards by unpacking their capacities and constraints viz. leadership, technical expertise, staff capacity and finances
- Engaging with the Union government on strengthening institutions that develop and implement policies related to air pollution
- Supporting the decadal review of the national ambient air quality standards led by the Central Pollution Control Board and IIT Kanpur

## CARE FOR AIR, New Delhi, INDIA

November 2015 – December 2023

## **Co-Founder and Governing Board Member**

- Co-founded a non-profit working towards increasing awareness of air pollution and its impacts on health
- Designed and deployed a state-of-the-art Student Ambassador Programme with participants from 14 schools across Delhi/NCR
- Developed expert submissions to the Supreme Court on the health impact of air pollution exposure as part of a public interest litigation filed by concerned citizens

# PUBLIC HEALTH FOUNDATION OF INDIA, New Delhi, INDIA **Adjunct Faculty** (July 2018 – Present)

January 2014 – Present

## Manager – Technical, Centre for Environmental Health (April 2016 – July 2018)

- Conceptualized, launched, and managed the Centre for Environmental Health in partnership with the Tata Institute of Social Sciences with a portfolio of over a dozen ongoing and completed projects totalling \$7 million in funding
- Project managed the NIH-funded Indian GEOHealth Hub established in partnership with the Harvard T. H. Chan School of Public Health; the Hub is exploring associations between long-term air pollution exposure and cardiometabolic risk factors in a 11,000 strong cohort study across two cities
- Served as the principal investigator of a \$300,000 grant aimed at fostering health sector leadership on environmental exposures, expanding the evidence base on air pollution exposures in tier-2 cities, and advocating for effective implementation of air pollution policies
- Acted as Co-PI on a study assessing India's preparedness to implement the Sustainable Development Goal for health.

- Established partnerships with multiple national and international stakeholders leading to grant funding, increased government engagement with central and state government leadership, membership of expert committees, and knowledge partnerships
- Directed PHFI's 10-year internal and external review, developing metrics, analysing data and developing domain specific reports that fed into Board-level decision making

## **Research Fellow**, Office of the President (January 2015 – April 2016)

- Expanded and led the scope of PHFI's work in Environmental Health by actively engaging with potential partners
- Wrote and won competitive grants from reputed funding agencies including the National Institutes of Health (USA), Rockefeller Foundation, World Health Organization, Shakti Sustainable Energy Foundation, and Health Care Without Harm.
- Established a partnership with the Environmental Health department at the Harvard T. H. Chan School of Public Health leading to innovative new approaches to study the long-term effects of air pollution in India.
- Engaged in several media sensitization workshops on air pollution

## **Executive Aide to the President** (March 2015 – July 2016)

- Assisted the President in streamlining internal governance and management processes
- Supported the President's office for meetings of the PHFI General Body, Executive Committee, Board subcommittees and the senior management committee, including preparation of agenda, reports, recommendation documents, notes, and minutes
- Assisted the President's office in implementation of fundraising projects initiatives; Coordinated with Board members and management divisions in fundraising efforts
- Collaborated with management divisions on budgetary strategic planning; meetings led to cost containments and better understanding of the complex cost structures of a multi-centre, multi-disciplinary organization
- Liaised with Government officials on individual research and institutional policy matters
- Provided ongoing technical support to the President

#### **Junior Research Fellow**, Office of the President (January 2014 – December 2014)

- Assisted the President in his work as the Co-Chair of the "Steering Committee on Health-Related Issues on Air Pollution" convened by the Ministry of Health and Family Welfare, by preparing and presenting policy briefs, drafting chapters for the committee's report, and liaising with government, institutional and academic stakeholders.
- Liaised with government officials in 2 states to map services and population coverage for a pilot of Universal Health Coverage; conducted a health system baseline assessment
- Convened a National workshop on Universal Health Coverage, bringing together representatives from Government, civil society, the private sector, multilateral organizations, and other stakeholders to advance the message of UHC.
- Supported the development of a Massive Open Online Course (MOOC) on "Global Public Health" in collaboration with the UN Sustainable Development Solutions Network.

## OTHER RELEVANT EXPERIENCE

AZIM PREMJI UNIVERSITY, Bengaluru, INDIA

August 2021 – January 2022

Visiting Faculty, School of Public Policy and Governance

HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH, Boston, USA

March 2017 – December 2019

Visiting Scientist, Exposure, Epidemiology and Risk Program at the Department of Environmental Health

CENTRE FOR CHRONIC DISEASE CONTROL, New Delhi, INDIA

January 2018 – July 2018

Consultant

UN-HABITAT, United Nations Human Settlements Programme, New York, USA Intern, New York Liaison office

February 2013 – July 2013

KPMG (Management Consulting), Bangalore, INDIA

December 2012 – February 2013 **Trainee Consultant, Business Performance Services** 

## **EXPERT COMMITTEE MEMBERSHIPS**

- 1. **Member**, SDG-3 task force of the Karnataka State Government (2018-2020)
- 2. **Invitee**, Implementation Science Network on Clean Cookstoves (US National Institutes of Health) (2016-2017)
- 3. **Member**, Expert Group on Biomedical Waste Management (Ministry of Health & Family Welfare) (2016-2017)
- 4. **Member**, Expert Group on Health Impacts in Critically Polluted Areas (Ministries of Health & Environment) (2015-2016)
- 5. **Secretariat**, Ministry of Health and Family Welfare Steering Committee on Air Pollution and Health Related Issues (2014-2016)

## TEACHING EXPERIENCE

## AZIM PREMJI UNIVERSITY, Bengaluru, INDIA

• Lead instructor – Public Health Policy and Governance in India (MPP – Fall 2021)

#### HARVARD UNIVERSITY, Boston, USA

- Teaching Fellow World Health Challenges (Prof. Sue Goldie, Harvard College Spring 2020)
- **Teaching Assistant** Policy and Politics in Public Health (Prof. John McDonough, Chan School of Public Health Fall 2019)

## INDIAN INSTITUTE OF PUBLIC HEALTH (PHFI), New Delhi, INDIA

- Lead instructor Environmental and Occupational Health core module (MPH 2015-18)
- Guest lecturer Global Health, Health Systems, and Non-Communicable Diseases modules (MPH & PGDPHM 2016-18)

## **ACADEMIC SERVICE**

Served as peer reviewer for the following journals:

- The Lancet
- Nature
- Environmental Science & Technology
- Environment International

- Environmental Science and Policy
- Atmospheric Environment
- Environment and Development Economics
- Science of the Total Environment

## **GRANT AWARDS**

- \$1,425,000 (Rainmatter Foundation) Grant to support the work of the Sustainable Futures Collaborative, 3 years, awarded 2024
- \$10,000 (WHO Country Office for India) Household Energy and Health in India Stakeholder Mapping, 3 months, awarded 2017, Principal Investigator
- \$20,000 (Environmental Defense Fund) Situational analysis of air pollution and health in India, 3 months, awarded 2017, Principal Investigator
- \$10,000 (WHO Country Office for India) Policy Options for Integrating SDG-3 in existing Health Plans, 3 months, awarded 2016, Principal Investigator
- \$300,000 (Health Care Without Harm) Strengthening Capacity for Research, Communications and Advocacy in Air Pollution, 2 years, awarded 2015, Principal Investigator
- \$1,500,000 (NIH-Fogarty International Centre) Air Pollution GEOHealth Hub Research and Capacity Building, 5 years, awarded 2015, Co-Investigator and Project Manager
- \$4,300,000 (Tata Sons & Tata Consultancy Services) Establishing a Centre of Excellence on Environmental Health, 5 years, awarded 2015, Co-Principal Investigator and Project Manager
- \$5,000 (Shakti Sustainable Energy Foundation) Review of the Process for Setting Industry-Specific Emissions Standards in India, 6 months, awarded 2015, Principal Investigator
- \$100,000 (Rockefeller Foundation) Supporting India's Global Role Within the Post-2015 Sustainable Development Goals Process, 1 year, awarded 2015, Co-Principal Investigator
- \$27,000 (Ministry of Health and Family Welfare) Supporting the Steering Committee on Air Pollution, 1 year, awarded 2014, Co-Principal Investigator

• CAD 1,500,000 (IDRC-CRDI) Universal Health Coverage as a Sustainable Development Goal, 3 years, awarded 2013, Co-Investigator

## **EDUCATION**

HARVARD UNIVERSITY, T.H. CHAN SCHOOL OF PUBLIC HEALTH, USA

July 2018 – May 2021

Doctor of Public Health (DrPH); NIH GEOHealth fellow; Julio Frenk fellow; Prajna Leadership fellow

KING'S COLLEGE LONDON, UK

Master of Science (M.Sc.), Global Environmental Change

September 2010 – January 2012

ANNA UNIVERSITY, INDIA

Bachelor of Technology (B.Tech.), Industrial Biotechnology

August 2005 – November 2009

#### **PUBLICATIONS**

#### **Journal Articles:**

- 1. de Bont, J., Nori-Sarma, A., Stafoggia, M., Banerjee, T., Ingole, V., Jaganathan, S., Mandal, S., Rajiva, A., **Krishna, B.**, ..., Ljungman, P. (2024). Impact of heatwaves on all-cause mortality in India: A comprehensive multi-city study. Environment International, 108461. https://doi.org/10.1016/j.envint.2024.108461
- 2. Guttikunda, S. K., Dammalapati, S. K., Pradhan, G., **Krishna, B.**, Jethwa, H. T., & Jawahar, P. (2023). What Is Polluting Delhi's Air? A Review from 1990 to 2022. Sustainability, 15(5), Article 5. https://doi.org/10.3390/su15054209
- 3. **Krishna, B.**, Mandal, S., Madhipatla, K., Reddy, K. S., Prabhakaran, D., & Schwartz, J. D. (2021). Daily nonaccidental mortality associated with short-term PM2.5 exposures in Delhi, India. Environmental Epidemiology, 5(4), e167. https://doi.org/10.1097/EE9.0000000000000167
- 4. Prabhakaran, D., Mandal, S., **Krishna, B.**, Magsumbol M., Singh, K., Tandon, N., Venkat Narayan, K.M., Shivashankar, R., Kondal, D., Ali, M. K., Srinath Reddy, K., and Schwartz, J. D., (2020). Exposure to Particulate Matter Is Associated With Elevated Blood Pressure and Incident Hypertension in Urban India, Hypertension 76(4):1289–98. doi: 10.1161/HYPERTENSIONAHA.120.15373.
- Walia, G. K., Mandal, S., Jaganathan, S., Jaacks, L. M., Sieber, N. L., Dhillon, P. K., Krishna, B., Magsumbol, M. S., Madhipatla, K. K., Kondal, D., Cash, R. A., Reddy, K. S., Schwartz, J., & Prabhakaran, D. (2020). Leveraging Existing Cohorts to Study Health Effects of Air Pollution on Cardiometabolic Disorders: India Global Environmental and Occupational Health Hub. Environmental Health Insights, 14, 1178630220915688. https://doi.org/10.1177/1178630220915688
- 6. Balakrishnan, K., Dey, S., Gupta, T., Dhaliwal, R. S., Brauer, M., Cohen, A. J., Stanaway, J. D., Beig, G., Joshi, T. K., Aggarwal, A. N., Sabde, Y., Sadhu, H., Frostad, J., Causey, K., Godwin, W., Shukla, D. K., Kumar, G. A., Varghese, C. M., Muraleedharan, P., **Krishna, B.**, ... Dandona, L. (2019). The impact of air pollution on deaths, disease burden, and life expectancy across the states of India: The Global Burden of Disease Study 2017. *The Lancet Planetary Health*, *3*(1), e26–e39. https://doi.org/10.1016/S2542-5196(18)30261-4
- 7. **Krishna, B.**, Balakrishnan, K., Siddiqui, A. R., Begum, B. A., Bachani, D., & Brauer, M. (2017). Tackling the health burden of air pollution in South Asia. *BMJ*, *359*, j5209. https://doi.org/10.1136/bmj.j5209
- 8. Reddy, K. S., Mathur, M. R., Negi, S., & **Krishna, B.** (2017). Redefining public health leadership in the sustainable development goal era. *Health Policy and Planning*, *32*(5), 757–759. https://doi.org/10.1093/heapol/czx006

#### **Submitted Articles:**

1. deBont, K.\*, **Krishna, B.\***, ..., Ljungman, P (2024). PM<sub>2.5</sub>, locally generated pollution, and daily mortality in India: Causal analyses modelling and attributable deaths in 10 cities. [Accepted for publication at the Lancet Planetary Health; \*shared first authorship]

## **Book Chapters:**

1. **Krishna, B.**, Sekar, A., & Prabhakaran, D. (2024). Environmental Risk Factors for Cardiovascular Disease. In D. Prabhakaran, R. Krishna Kumar, N. Naik, & D. Itchhaporia (Eds.), Tandon's Textbook of Cardiology (2nd ed., 1–1). Wolters Kluwer India Pvt Ltd.

- 2. **Krishna, B.**, & Prabhakaran, D. (2019). Environmental Risk Factors for Cardiovascular Disease. In U. Kaul, P. Dorairaj, K. K. Raman, & N. Naik (Eds.), Tandon's Textbook of Cardiology. Wolters Kluwer India Pvt Ltd.
- 3. **Krishna, B.**, & Prabhakaran, D. (2015). Air Pollution and Heart Disease. In C. HK & S. Mehta (Eds.), *Cardiology Update 2015*. Cardiology Society of India.

#### **Working Papers:**

- 1. Mahajan, A., Ghosh, S., Dhawan, P., & **Krishna, B.** (2023). The State of India's Pollution Control Boards: Are they in the green? https://cprindia.org/workingpapers/the-state-of-indias-pollution-control-boards/
- 2. Karkun, A., Mathew, S., Ghosh, S., & **Krishna, B**. (2022). The State of India's Pollution Control Boards: Who has a seat at the table? https://cprindia.org/workingpapers/the-state-of-indias-pollution-control-boards/
- 3. Ghosh, S., Karkun, A., Mathew, S., & **Krishna, B**. (2022). The State of India's Pollution Control Boards: Who is at the helm? https://cprindia.org/workingpapers/the-state-of-indias-pollution-control-boards/
- 4. **Krishna, B.**, Karkun, A., Mathew, S., Dhawan, P., & Ghosh, S. (2022). The State of India's Pollution Control Boards: Who is in the field? https://cprindia.org/workingpapers/the-state-of-indias-pollution-control-boards/

#### **Reports:**

- 1. **Krishna, B.**, Shahbaz, B., & Mahajan, A. (2024). Sustainable solutions to crop residue burning and air pollution cycle in India and Pakistan in: The air we share—Towards reduced transboundary air pollution across India and Pakistan. Council for Strategic and Defense Research.
- 2. Ghosh, S., **Krishna, B.**, & Sekar, A. (2023). Regulating Air Quality at an Airshed Level in India. Centre for Policy Research. https://cprindia.org/workingpapers/regulating-air-quality-at-an-airshed-level-in-india/
- 3. **Krishna, B.**, & Sekar, A. (2023). A Health-Centred Framework for Establishing Ambient Air Quality Standards. Centre for Policy Research. https://cprindia.org/workingpapers/a-health-centred-framework-for-establishing-ambient-air-quality-standards/
- 4. **Krishna, B.** (2021). Strengthening India's Ambient Air Quality Standard-Setting Process. Centre for Policy Research. https://cprindia.org/research/papers/strengthening-india%E2%80%99s-ambient-air-quality-standard-setting-process
- 5. Bahuguna, V., and **Krishna, B**. (2020). Strengthening Pollution Control Boards to Achieve the National Ambient Air Quality Standards in India. New Delhi: Centre for Chronic Disease Control. https://www.ceh.org.in/publication/strengthening-pollution-control-boards-to-achieve-the-national-ambient-air-quality-standards-in-india/
- 6. Anand, M., Satpathy, I., Shardul, M., Brahmachari, D., Ghosh, S., Bahuguna, V., Sen, B., & **Krishna, B**. (2018). Opportunities for Transition to Clean Household Energy: Application of the Household Energy Assessment Rapid Tool (HEART). World Health Organisation. https://www.ceh.org.in/wp-content/uploads/2018/11/India-HEART-Report-Final.pdf
- 7. **Krishna, B.**, Madhipatla, K., Sivaram, S., & Bahuguna, V. (2017). Air Pollution and Health in India: A review of the current evidence and opportunities for the future. Centre for Environmental Health, Public Health Foundation of India. https://www.ceh.org.in/wp-content/uploads/2018/10/Air-Pollution-and-Health-in-India.pdf
- 8. George, M. S., Mathur, M. R., Reddy, K. S., & **Krishna**, **B**. (2016). Supporting India's Global Role Within the Post-2015 Sustainable Development Goals Process—A Situational Analysis. Public Health Foundation of India.
- 9. Balakrishnan, K., **Krishna, B.**, Reddy, K. S., Guttikunda, S., Smith, K. R., Magsumbol, M. S., Roychowdhury, A., & Sagar, A. D. (2015). Report of the Steering Committee on Air Pollution and Health Related Issues. Ministry of Health and Family Welfare.

## **Policy Briefs:**

- 1. **Krishna, B.**, & Rao, A. (2016). Non-Communicable Diseases in a Universal Health Coverage Framework. Public Health Foundation of India.
- 2. **Krishna, B.**, & Rawat, N. (2015). Continued Commitment to Achieve Progress on the MDGs. Public Health Foundation of India.
- 3. Singh, S., Rawat, N., **Krishna, B.**, Mathur, M. R., & Mishra, N. (2015). Acknowledging Tobacco as a Multi-Sectoral Issue in the Roadmap to Sustainable Development. Public Health Foundation of India.
- 4. **Krishna, B.** (2014). Ambient Air Pollution and Public Health: A Call to Action. Public Health Foundation of India. https://www.ceh.org.in/wp-content/uploads/2017/12/PHFI-PositionPaper.pdf

#### **Opinion**:

- 1. Sekar, A., & **Krishna, B.** (2023, January 10). Anti-smog guns, sprinklers, dust suppressants: How effective are these quick-fixes to air pollution? Scroll.In. https://scroll.in/article/1041131/anti-smog-guns-sprinklers-dust-suppressants-how-effective-are-these-quick-fixes-to-air-pollution
- 2. **Krishna, B.**, & Dey, S. (2022, November 15). Making health the focus of air pollution policy. The Hindu. https://www.thehindu.com/opinion/op-ed/making-health-the-focus-of-air-pollution-policy/article66140242.ece
- 3. Ghosh, S., & **Krishna, B.** (2022, November 1). The weakest link in the air pollution fight. *The Hindu*. https://www.thehindu.com/opinion/op-ed/the-weakest-link-in-the-air-pollution-fight/article66082739.ece
- 4. **Krishna, B.** (2022, October 20). Addressing north India's burning issue sustainably. *The Hindu*. https://www.thehindu.com/opinion/op-ed/addressing-north-indias-burning-issue-sustainably/article66036962.ece
- 5. **Krishna, B.** (2022, March 28). Air Crisis: India's Toothless Pollution Response, Delhi-Centric Discourse To Blame. *The Wire Science*. https://science.thewire.in/environment/airpocalypse-toothless-regulations-delhi-centric-discourse/
- 6. **Krishna, B.**, Krishnan, A., Ganesan, K., Prabhakaran, P., & Dey, S. (2022, February 10). The Bad Science Choking India. *The India Forum, March 4*, 2022. https://www.theindiaforum.in/article/bad-science-choking-india
- 7. **Krishna, B.**, & Ghosh, S. (2021, December 23). Bad air: Ad hocism won't work anymore. *Hindustan Times*. https://www.hindustantimes.com/opinion/bad-air-ad-hocism-won-t-work-anymore-101640282173777.html
- 8. **Krishna, B.**, & Harish, S. (2021, September 25). Clearing the air through the revised WHO guidelines. *Hindustan Times*. https://www.hindustantimes.com/opinion/clearing-the-air-through-the-revised-who-guidelines-101632575539328.html
- 9. Harish, S., & **Krishna, B.** (2020, December 28). What Ella Kissi-Debrah's Death Reminds Us About India's Air Pollution Crisis. *The Wire Science*. https://science.thewire.in/health/what-ella-kissi-debrahs-death-reminds-us-about-indias-air-pollution-crisis/
- 10. **Krishna, B.**, & Reddy, K. S. (2020, September 1). What the COVID-19 experience has taught us about tackling air pollution as a health crisis. *Collaborative Clean Air Policy Centre*. https://ccapc.org.in/policy-briefs/2020/krishna-reddy-covid
- 11. **Krishna, B**. (2019, January 16). India's environment ministry once again downplays the effects of air pollution on human health. *Scroll.In*. https://scroll.in/pulse/909340/indias-environment-ministry-once-again-downplays-the-effects-of-air-pollution-on-human-health
- 12. **Krishna, B.**, & Reddy, K. S. (2018, May 11). Public health in times of environmental pollution. *The Hindu BusinessLine*. https://www.thehindubusinessline.com/specials/pulse/public-health-in-times-of-environmental-pollution/article23856488.ece
- 13. **Krishna, B**. (2017, October 29). It's a public health emergency, new approach needed. *Deccan Herald*. https://www.deccanherald.com/content/639887/its-public-health-emergency-approach.html
- 14. **Krishna, B.** (2017, February 14). Despite the evidence, India's environment minister underplays the health effects of air pollution. *Scroll.In.* https://scroll.in/pulse/829254/despite-the-evidence-indias-environment-minister-underplays-the-health-effects-of-air-pollution
- 15. **Krishna, B**. (2016, November 29). As Delhi dominates the airpocalypse narrative, the rest of India quietly chokes to death. *Scroll.In*. http://scroll.in/pulse/821837/as-delhi-dominates-the-airpocalypse-narrative-the-rest-of-india-quietly-chokes-to-death
- 16. **Krishna, B.**, & Lavakare, N. (2016, June 16). Centre's lopsided priority in measures to curb pollution. *Deccan Herald*. https://www.deccanherald.com/content/552706/centres-lopsided-priority-measures-curb.html
- 17. **Krishna, B**. (2016, January 21). Smart City or Gas Chamber? Building India Under a Layer of Smoke. *The Quint*. https://www.thequint.com/opinion/2016/01/21/smart-city-or-gas-chamber-building-india-under-a-layer-of-smoke
- 18. **Krishna, B.**, & Reddy, K. S. (2015, September). Tackling the hidden assassin. *Our Planet (UN Environment Magazine)*.

## **Podcast Appearances:**

- 1. Climate Mahaul: *Air Pollution in Delhi and Lahore*; Tabadlab; https://soundcloud.com/climatemahaul/climatemahaul-episode-3
- 2. P3 Dystopia: Air Pollution The Invisible Killer; Sveriges Radio; https://sverigesradio.se/avsnitt/1742088
- 3. NL Interview: *Harvard researchers on myths and realities of the coronavirus pandemic*; Newslaundry Podcasts; https://www.newslaundry.com/2020/04/01/nl-interview-harvard-researchers-on-myths-and-realities-of-the-coronavirus-pandemic