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SABIN CENTER FOR CLIMATE CHANGE LAW

LEGAL LEVERS FOR CLEANER

AIR IN KOLKATA:

An Assessment of Local Legal Authority

By Ama Francis

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EXECUTIVE SUMMARY

Air pollution in India results in significant adverse health and environmental outcomes. Only 16% of the population lives in an area that meets India’s national air quality standards, and less than 1% lives in an area that meets international guidelines for air quality. In 2015, air pollution resulted in 1.1 million deaths nation-wide. If the World Health Organization’s air quality standard was met, Indian life expectancy would increase by 5.2 years. The state of West Bengal, wherein Kolkata is located, faces some of the highest exposures to air pollution in the country, making local interventions there critical.

In recent years, the central government has taken steps to improve air quality, creating, for example, the National Clean Air Programme in 2019. Kolkata was the first city in West Bengal to be named out of compliance with national air quality standards under the program, even after the Air Quality Monitoring Committee developed a clean air plan for Kolkata in 2018. Despite some developments, including actions to curb one of the Kolkata’s lead causes of air pollution by banning open burning of coal and firewood, the city still has steps to take to enhance air quality.

This report outlines various measures that the Kolkata Municipal Corporation could undertake to advance clean air in the city. Namely, the city could:

1. Regulate the Combustion of Solid Fuels for Cooking;
2. Improve Roadways to Reduce Road Dust & Vehicular Emissions;
3. Enhance Solid Waste Management to Limit Waste Burning;
4. Establish a Public Awareness Campaign to Educate the Public & Reduce Risks; and
5. Support Public Interest Litigation to Compel Further Government Action.

The Government of West Bengal has significantly more authority than the city government to regulate air pollution, especially through the West Bengal Pollution Control Board. Given the transboundary nature of air pollutant emissions, a nation-wide approach to improving air quality might also be most efficient. Nevertheless, given that the Kolkata Municipal Corporation has the authority to promote public health, construct and maintain roadways, manage solid waste, and educate the public, the city should use this authority to enact measures that would improve air quality, especially given that residents face some of the highest exposures to air pollution nation-wide. These local interventions would serve as a beneficial complement to national action.

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1. INTRODUCTION

This report was produced as part of the Clean Air Toolkit initiative (CAT) at Columbia University. The CAT is a multidisciplinary research team that aims to enhance the capacity of African and Asian cities to develop solutions for cleaner air, including legal solutions. The CAT aims to identify sources of pollution, quantify city-level and population-specific health risks (with particular attention to sensitive groups including children and pregnant women), and openly share data with user-friendly tools for visualization and interpretation. The CAT also plans to establish local outreach and resource centers, or Clean Air Hubs, that can enhance technical capacity and support pollution reduction at the local, national, and regional scale. Ultimately, the CAT aims to reduce air pollution and protect human health in Asian and African cities by collaboratively developing data-driven clean air solutions. In India, the CAT is partnering with Kolkata to build on existing capacity to establish an air pollution monitoring network.

Recognizing that Kolkata's capacity to secure cleaner air depends in part on its legal authority to advance environmental measures, this report scopes Indian law on clean air. In preparing the report, the Sabin Center analyzed existing laws, regulations and institutions to highlight legal opportunities for Kolkata to strengthen local clean air law and policy. The report reviews pre-existing national and state legal institutions and legislation that govern clean air, as well as Kolkata's powers to enact clean air local law, influence national and state policy on clean air, and engage in public interest litigation.

Although Kolkata will need to coordinate with state entities, especially the West Bengal Pollution Control Board, to advance robust air quality measures, the city can nevertheless take critical independent action to enhance air quality based on existing authority, including:

1. Regulating the Combustion of Solid Fuels for Cooking;
2. Improving Roadways to Reduce Road Dust & Vehicular Emissions;
3. Enhancing Solid Waste Management to Limit Waste Burning;
4. Establishing a Public Awareness Campaign to Educate the Public & Reduce Risks; and
5. Supporting Public Interest Litigation to Compel Further Government Action.

1.1 Governance Structure of Kolkata

The Kolkata Metropolitan Area (KMA) refers to the third largest urban agglomeration in India, with a population of nearly 15 million residents.¹ KMA developed out of one of the oldest cities in the world, and the former capital of the British Empire.² In contemporary terms, KMA serves as a cultural and economic center in East India, and comprises three municipal corporations and 37 smaller municipalities in the state of West Bengal. The largest of these three municipal corporations, the Kolkata Municipal Corporation (KMC), is the most heavily populated in the KMA, constituting approximately one third of the overall metropolitan population.³

The KMC (or “Kolkata”) was established as a city in its modern form by the Municipal Corporation Act (1980).⁴ The Municipal Corporation Act sets up KMC’s current governance structure, including a corporation, mayor-in-council, and mayor.⁵ KMC’s jurisdictional area consists of 187.33 km² stretching along the east bank of the River Hooghly from north to south, and from the River Hooghly nearly to the Eastern Metropolitan Bypass from west to east.⁶ The West Bengal Corporation Act (2006) governs all other cities in West Bengal, except Howrah⁷ and KMC.

This report will focus on the legal authority of KMC. However, given that KMC is one legal entity within KMA, cooperation with other municipal corporations and municipalities, or a state-level approach, will lead to more effective governance of air pollution in the urban area.

¹ Census of India (2011) <https://www.censusindia.gov.in/pca/SearchDetails.aspx?Id=375980>.

² *Kolkata, the Metropolitan City and its Pattern of Development*, https://shodhganga.inflibnet.ac.in/bitstream/10603/61962/10/10_chapter%203.pdf.

³ Census of India (2011) <https://www.censusindia.gov.in/pca/SearchDetails.aspx?Id=375980>

⁴ Kolkata Municipal Corporation Act, 1980, http://www.wbja.nic.in/wbja_adm/files/The%20Kolkata%20Municipal%20Corporation%20Act,%201980.pdf

⁵ *About Kolkata*, <https://www.kmcgov.in/KMCPortal/jsp/KMCAboutKolkataHome.jsp>.

⁶ B. Bhatta, *Urban Growth Analysis and Remote Sensing*, GEOGRAPHY Appendix A (2012)

⁷ Howrah Municipal Corporation Act, 1980

1.2 Air Pollution Challenges

Air pollution results in significant adverse health impacts in India. Eighty-four percent of the population lives in areas that exceed India's National Ambient Air Quality Standard (NAAQS)⁸, and less than 1% of the population lives in an area that meets the World Health Organization's guideline for air quality.⁹ If air pollution were reduced to India's national standard, life expectancy would increase by 2.3 years, and if air pollution were reduced to meet the World Health Organization's standard, life expectancy would increase by 5.2 years.¹⁰ In 2015, air pollution caused 1.1 million deaths in India.¹¹ In addition to these adverse health impacts, air pollution also intensifies climate change.¹²

West Bengal, where KMC is located, is among the states with the highest population exposure to air pollution that exceeds the NAAQS.¹³ Lead causes of air pollution in the city include the burning of solid fuel for residential and commercial cooking, waste burning, agricultural activities, and road dust.¹⁴ Open waste burning also contributes to 17% of organic carbon emissions and 10% of carbon monoxide emissions.¹⁵ The air pollution profile of Kolkata is distinct from other urban areas in India, such as Delhi, whose main sources of air pollution derive from vehicle

⁸ *India Fact Sheet*, AIR QUALITY LIFE INDEX (Jul. 2020), https://aqli.epic.uchicago.edu/wp-content/uploads/2020/07/IndiaFactSheet2020-.pdf?mc_cid=f126143306&mc_eid=1518b8465d.

⁹ Xinming Du et al., *Cross-State Air Pollution Transport Calls for More Centralization in India's Environmental Federalism* 1 (Aug. 2020).

¹⁰ *India Fact Sheet*, AIR QUALITY LIFE INDEX (Jul. 2020), https://aqli.epic.uchicago.edu/wp-content/uploads/2020/07/IndiaFactSheet2020-.pdf?mc_cid=f126143306&mc_eid=1518b8465d.

¹¹ *Burden of Disease Attributable to Major Air Pollution Sources in India*, HEALTH EFFECTS INSTITUTE (2018).

¹² E. Von Schneidmesser et al., *Chemistry and the Linkages between Air Quality and Climate Change*, 10 CHEMICAL REVIEWS 3856 (2015).

¹³ Xinming Du et al., *Cross-State Air Pollution Transport Calls for More Centralization in India's Environmental Federalism* 6 (Aug. 2020).

¹⁴ Xinming Du et al., *Cross-State Air Pollution Transport Calls for More Centralization in India's Environmental Federalism* 6 (Aug. 2020); Majumdar, et al. "Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India," *Atmospheric Environment*, Vol. 222, Art. 117,135 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

¹⁵ Majumdar, et al. "Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India," *Atmospheric Environment*, Vol. 222, Art. 117,135 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

emissions and large-scale industrial operations.¹⁶ Although vehicle emissions are a small contributor compared to other cities, and Kolkata enjoys a relatively high-quality public transportation network,¹⁷ narrow roads and low road density¹⁸ do exacerbate air pollution from vehicles.

Kolkata's air quality challenges are nationally recognized. In 2019, the central government launched the Clean Air Programme, under which cities with air quality that do not meet national standards are to develop city action plans to reduce pollution levels.¹⁹ Kolkata was the first city in West Bengal to be recognized as out of compliance with the NAAQS under the program.²⁰ Moreover, recognizing that air quality in KMC does not meet national standards, the National Green Tribunal (Tribunal) brought a case *suo moto*, and as a result, ordered the Government of West Bengal to establish an Air Quality Monitoring Committee to identify options for Kolkata to be brought into compliance.²¹ The Air Quality Monitoring Committee subsequently created a clean air plan that outlines West Bengal's methods to reduce air pollution in Kolkata.²²

2. LAW ON AIR QUALITY

This section provides an overview of the legal and institutional landscape for regulating air quality in India with a particular focus on Kolkata, a key partner in the CAT initiative.

¹⁶ *Id.*

¹⁷ Ease of Moving Index, Ola Mobility Institute (2018)

<https://ola.institute/ease-of-moving/>

¹⁸ "Kolkata", Centre for Science and the Environment (Kolkata has less than 10% of its land dedicated to roads compared to Delhi's 21% and as a result traffic speeds average 18kph) <https://www.cseindia.org/kolkata-1748>

¹⁹ Xinming 10

²⁰ National Clean Air Programme at pg.19, Ministry of the Environment, Forests, and Climate Change http://moef.gov.in/wp-content/uploads/2019/05/NCAP_Report.pdf

²¹ In matter of News Item Published in "The Times of India" authorized by Shri Vishwa Mohan Titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around Original Application 681 (2018)

²² "Comprehensive Air Quality Action Plan for Kolkata" by the Air Quality Monitoring Committee (Dec. 31, 2018) [http://www.wbpcb.gov.in/writereaddata/files/Comprehensive%20Air%20Quality%20Action%20Plan%20\(3\).pdf](http://www.wbpcb.gov.in/writereaddata/files/Comprehensive%20Air%20Quality%20Action%20Plan%20(3).pdf)

2.1 Environmental Law in India

2.1.1 Constitutional Law

The Constitution of India establishes a quasi-federal system²³ of governance in India with one central and several state governments. The central government (Union) consists of an executive branch (the Center), a legislature (Parliament), and a judicial arm (the Supreme Court). State governments include a separate bicameral or unicameral legislature, an executive branch, and a judicial branch headed by the state High Court. The Constitution outlines the powers of the central and state governments in three lists: the Union List²⁴, the State List²⁵, and the Concurrent List²⁶. The Constitution vests all residual powers not explicitly named in the State List or Concurrent List in the Union Parliament.²⁷ When there is a conflict in law between the Union and the states, central government legislation is supreme.²⁸

The Constitution also outlines the fundamental rights and duties of Indian citizens. Indians have access to the Supreme Court where the government has infringed upon fundamental rights, including the right to a clean environment and clean air.²⁹ Courts have read a right to a clean environment, despite no express mention, through rights to life and personal liberty expressed in Art. 21.³⁰ The Supreme Court has also read a right to clean air into Art. 21.³¹ In contrast to fundamental rights, fundamental duties are not directly justiciable. Relevant fundamental duties include a duty on all Indians to care for the natural environment,³² and for the government to “protect and improve the environment and to safeguard the forests and wildlife of the country.”³³

²³ *State of West Bengal v Union of India* 1963 AIR 1241

²⁴ Constitution of India, Sch. 7, List I

²⁵ Constitution of India, Sch. 7, List II

²⁶ Constitution of India, Sch. 7, List III

²⁷ Constitution of India, Art. 248

²⁸ Constitution of India, Art. 251

²⁹ Constitution of India, Art. 32

³⁰ *Mathew Lukose v Kerala State Pollution Control Board* 1990 (2) Ker.L.T. 686

³¹ *M.C. Mehta v. Union of India*, (1996) Supp. 10 S.C.R. 973 (India)

³² Constitution of India, Art. 51A(g)

³³ Constitution of India, Art. 48A

Although fundamental duties do not confer a corresponding cause of action, courts use these duties to inform rulings on environmental matters.³⁴

In addition to the authority the Constitution vests in the central and state governments in regard to environmental law and the environmental rights and duties it creates, the Constitution grants the Union Parliament legislative power to implement international law or commitments, even if the legislative topic falls within the State List.³⁵ The central government passed all the country's major environmental statutes (including all those discussed below) using this power in the wake of the 1972 United Nations Conference on the Human Environment.

2.1.2 Statutory Law

2.1.2.1 The Environment (Protection) Act, 1986

The Environment (Protection) Act, 1986 (EP Act) serves as India's umbrella legislation on environmental protection and pollution. Passed after one of the most significant environmental disasters in Indian history, the Bhopal gas tragedy, the EP Act grants the central government broad power to protect the environment,³⁶ including the ability to plan nationwide programs, set standards, and designate protected areas; give directions (including for the closure and regulation of industry);³⁷ and promulgate rules to limit environmental pollution.³⁸

The central government has delegated its power to give directions to various states on a state-by-state basis pursuant to s.23 of the EP Act. West Bengal received authority to give directions in 1988.³⁹ Accordingly, West Bengal can regulate any industry, and order the closure of non-compliant industries.⁴⁰ The central government also used its authority under the EP Act, via the Ministry of Environment, Forests and Climate Change (MoEF), to create and amend the Environment (Protection) Rules, 1986 (EP Rules), pursuant to s.25 of the EP Act.⁴¹

³⁴ See, e.g. *M.C. Mehta v Union of India* 1988 AIR (SC) 1037

³⁵ Constitution of India, Art. 253

³⁶ s.3 Environment (Protection) Act, 1986

³⁷ s.5 Environment (Protection) Act, 1986

³⁸ s.6 Environment (Protection) Act, 1986

³⁹ S.O.408(E), [6/6/1989] (Notification by the Ministry of Environment, Forest and Climate Change delegating power to the State Governments of West Bengal and Manipur)

⁴⁰ s.5 Environment (Protection) Act, 1986

⁴¹ s.25 Environment (Protection) Rules, 1986

The EP Rules are relevant in two regards. First, the EP Rules schedules set minimum standards for several pollutants. Schedule VII of the EP Rules, for example, establish the 2009 NAAQS.⁴² Second, the schedules of the EP Rules also set guidelines for State Pollution Control Boards (SPCBs) in enforcing environmental pollution (further details below in Section 2.1.2.1.2). Notably, the EP Rules provide that SPCBs can set more stringent standards on pollutants for specific industries/processes provided the boards record their rationale in writing.⁴³ Thus the West Bengal Pollution Control Board may have the legal authority to set stricter standards on pollutants at the state level.

The central government has also exercised its rulemaking authority through the MoEF to pass the Solid Waste Management Rules, 2016 (Waste Rules). The Waste Rules require the segregation of biodegradable and non-biodegradable waste at its source, including residential sources;⁴⁴ prohibit waste burning in generators;⁴⁵ and mandate that local authorities create an adequate waste collection system.⁴⁶ The Waste Rules also regulate other forms of waste, including construction⁴⁷ and electronics waste.⁴⁸

Finally, the MoEF passed the Environmental Impact Assessment Notification, 2006⁴⁹ (EIA Notification) under the EP Act, which further centralizes environmental regulation in India. According to the EIA Notification, all industrial projects must receive environmental clearance from the MoEF (and in some cases, other central government agencies) before commencing construction and operations. The EIA Notification requires industrial entities to produce an environmental impact assessment depending on the extent of potential impact of a project or activity on human health and natural and man-made resources.⁵⁰

⁴² Schedule VII, r 3(3B), Environment (Protection) Rules, 2009

⁴³ s.3(2) Environment (Protection) Rules, 1986

⁴⁴ s.4(1)(a) Solid Waste Management Rules, 2016

⁴⁵ s.4(2) Solid Waste Management Rules, 2016

⁴⁶ s.15 Solid Waste Management Rules, 2016

⁴⁷ Construction and Demolition Waste Management Rules, 2016

⁴⁸ E-Waste (Management and Handling) Rules, 2011

⁴⁹ S.O. 1533(E)

⁵⁰ *Id.*

The EIA Notification divides selected industries into two categories, A and B, to determine whether industries need approval from the central government to begin a project (category A⁵¹) or from a State Environmental Impact Assessment Authority ('SEIAA') (category B⁵²). The SEIAAs are established by the central government, but comprised of members nominated by their respective state governments.⁵³

In both categories A and B, the respective regulators are advised by an expert committee—the Expert Advisory Committee for the central government, and State Expert Advisory Committees for the SEIAA—that recommends whether to grant an environmental clearance.⁵⁴ The committee's recommendation is formed in part based on public comment gathered through a required public hearings process.⁵⁵ Thus CAT efforts to make air quality data more accessible to the public could enhance the ability of the public to meaningfully engage in the environmental clearance process.

2.1.2.2. The Water (Prevention and Control of Pollution) Act, 1974 & Air (Prevention and Control of Pollution) Act, 1981

The Water (Prevention and Control of Pollution) Act, 1974 establishes two institutional mechanisms for regulating air pollution in India: i) the Central Water Pollution Prevention Board, and ii) State Water Pollution Prevention Boards. The Air (Prevention and Control of Pollution) Act, 1981 (Air Act) renames these boards the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs), and further articulates their authority, empowering the CPCB and SPCBs to regulate air pollution along with the central and state governments. Central and state governments can also instruct the boards to implement other environmental policies not covered in their original mandates.⁵⁶ Thus, the boards exercise significant power over air pollution in India.

⁵¹ s.4(ii) EIA Notification, 2006

⁵² s.4(iii) EIA Notification, 2006

⁵³ s.3 EIA Notification, 2006

⁵⁴ Ghosh, "Demystifying the Environmental Clearance Process in India" 6 NUJS L.Rev. 3 (2013)

⁵⁵ A proposed EIA Notification could reduce the ability of the public to effectively participate in the environmental clearance process. See Draft EIA Notification, 2020, available at http://environmentclearance.nic.in/writereaddata/Draft_EIA_2020.pdf

⁵⁶ ss.16(2)(j) & 17(1)(i) Air (Prevention and Control of Pollution) Act, 1981

2.1.2.1.1 Central Pollution Control Board

Housed within the MoEF, the CPCB serves as the central government's main body for regulating air pollution. The Air Act tasks the CPCB with improving air quality, and limiting air pollution in India. Accordingly, the CPCB has the authority to plan nation-wide air quality improvement programs, set air quality standards, and advise the central government on air quality regulation at the national level.⁵⁷ The CPCB can also coordinate media programs and public education,⁵⁸ and collect and publish technical data.⁵⁹

The CPCB generally looks to the central government when setting emission and discharge standards.⁶⁰ For example, the CPCB exercised its power to set air quality standards in order to adopt the NAAQS⁶¹ that the MoEF established through an amendment to the EP Rules.⁶² The NAAQS serve as a benchmark within the central government's National Clean Air Programme (NCAP), a 5-year plan to reduce air pollution created in 2019.⁶³ The CPCB has also set standards for auto fuel quality and electricity generators, including standards for noise, in addition to air emissions.

The CPCB fits into the quasi-federal architecture of Indian governance by coordinating SPCB activities.⁶⁴ The CPCB can give directions that bind the SPCBs,⁶⁵ but itself must follow directions from the central government.⁶⁶ Although the CPCB and SPCB share similar mandates, the CPCB serves as more of a scientific and technical advisory body, while the SPCB performs the key functions of regulatory oversight and enforcement.⁶⁷ The CPCB also operates directly as a SPCB in the Union territories, wherein there is no state government.

⁵⁷ ss.16 Air (Prevention and Control of Pollution) Act, 1981

⁵⁸ S.16(2)(f) Air (Prevention and Control of Pollution) Act, 1981

⁵⁹ s.16(2)(i) Air (Prevention and Control of Pollution) Act, 1981

⁶⁰ Ghosh, *The Environment*, at 210.

⁶¹ No. B-29016/20/90/PCI-L, National Ambient Air Quality Standards (2009)

⁶² EP Rules, r 3(3B), 2009

⁶³ National Clean Air Programme at pg.19, Ministry of the Environment, Forests, and Climate Change http://moef.gov.in/wp-content/uploads/2019/05/NCAP_Report.pdf

⁶⁴ S.16(2)(c) Air (Prevention and Control of Pollution) Act, 1981

⁶⁵ s.18(b) Air (Prevention and Control of Pollution) Act, 1981

⁶⁶ s.18(a) Air (Prevention and Control of Pollution) Act, 1981

⁶⁷ Shibani Ghosh, *The Environment*, in REGULATION IN INDIA: DESIGN, CAPACITY, PERFORMANCE 205, 208 (Devsh Kapur & Madhav Khosla eds., 2019).

2.1.2.1.2 State Pollution Control Boards

The SPCBs possess significant power to regulate air pollution. Pursuant to the Air Act, SPCBs have the authority to regulate air pollution at the state level, including the power to inspect air pollution control areas, and set standards in consultation with the CPCB⁶⁸ for air pollution emissions from industrial plants, automobiles and other sources.⁶⁹ According to the EP Rules, these standards may exceed those of the CPCB.⁷⁰

2.1.2.1.3 West Bengal Pollution Control Board

The West Bengal Pollution Control Board (WBPCB) is the SPCB for West Bengal, wherein Kolkata is located. The WBPCB enjoys the powers the Air Act confers unto SPCBs. These include powers to designate “pollution control areas” in consultation with the state to limit the use of polluting fuels and appliances.⁷¹ The WBPCB can also prohibit the burning of any non-fuel materials in pollution control areas.⁷² All entities that have not received environmental clearance to undertake a project or activity as required by the EIA Notification, 2006, must receive consent to operate from the WBPCB if they generate air pollution in pollution control areas. The WBPCB may further require these industries to use specific control equipment, and periodically update equipment requirements based on technological advances.⁷³

The Air Act further empowers the WBPCB to give directions to prevent, control, or abate air pollution at the state level, and inspect control equipment, industrial plants, and manufacturing processes.⁷⁴ Accordingly, the WBPCB has the power to enforce environmental regulations which concern air pollution, including those it issues. The WBPCB may also apply to any court not inferior to that of a Metropolitan Magistrate or a Judicial Magistrate of the first class for an order to restrain

⁶⁸ Courts refer to this as a “consultative process.” *Wintrack Blue Metals v Appellate Authority, Tamil Nadu Pollution Control Board and Ors.* (National Green Tribunal Mar. 18, 2016)

⁶⁹ ss.17 Air (Prevention and Control of Pollution) Act, 1981

⁷⁰ s.3(2) Environment (Protection) Rules, 1986

⁷¹ s.19(3) Air (Prevention and Control of Pollution) Act, 1981

⁷² s.19(5) Air (Prevention and Control of Pollution) Act, 1981

⁷³ s.21(6) Air (Prevention and Control of Pollution) Act, 1981

⁷⁴ s.17(1)(e) Air (Prevention and Control of Pollution) Act, 1981

individuals from causing air pollution.⁷⁵ Disobeying CPCB or WBPCB directions can result in criminal penalties pursuant to the Air Act.⁷⁶

Finally, just as the CPCB advises the central government on matters concerning air pollution, the WBPCB advises the government of West Bengal.⁷⁷ In coordination with the state government, the WBPCB can issue instructions to the motor vehicle registration authority to ensure compliance with the standards for emissions of air pollutants from automobiles.⁷⁸

2.2 The Judiciary

The National Green Tribunal (Tribunal) serves as the major adjudicatory body on environmental issues. Established through the National Green Tribunal Act in 2010, the Tribunal has authority to hear all civil cases regarding a substantial environmental question, including issues arising under the EP Act and Air Act, and matters related to the enforcement of any legal right relating to the environment.⁷⁹ The Tribunal has spurred significant developments vis-à-vis air pollution. For example, the Tribunal has prohibited the use of diesel vehicles older than ten years and petrol vehicles older than fifteen years from registration within the National Capital Region;⁸⁰ and has ordered a reduction in pollution caused by construction activities⁸¹ and crop burning.⁸² In 2017, the Tribunal banned construction and industrial activities, as well as the entry of trucks into Delhi when air quality levels became dangerous.⁸³

The Tribunal also has the authority to bring cases on its own motion, as well as accept petitions from government and individuals.⁸⁴ For example, the tribunal brought a case *suo moto*,

⁷⁵ s.22A Air (Prevention and Control of Pollution) Act, 1981

⁷⁶ ss.37-39 Air (Prevention and Control of Pollution) Act, 1981

⁷⁷ s.17(1)(b) Air (Prevention and Control of Pollution) Act, 1981

⁷⁸ s.20 Air (Prevention and Control of Pollution) Act, 1981

⁷⁹ s.14(1) & s.2(1)(m) National Green Tribunal Act, 2010

⁸⁰ *Vardhaman Kaushik v Union of India*, OA No 21/2014 (Apr. 7, 2015)

⁸¹ *Vardhaman Kaushik v Union of India*, OA No 21/2014 (Dec. 4, 2014)

⁸² *Vikrant Kumar Tongad v Environment Pollution (Prevention & Control) Authority and Others*, OA 118/2013 (Dec. 10, 2015).

⁸³ *Vardhaman Kaushik v Union of India* (n 103) (Nov. 9, 2017).

⁸⁴ See, e.g., *In matter of News Item Published in "The Times of India" authorized by Shri Vishwa Mohan Titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around August 15th*

which ultimately ordered the Government of West Bengal to establish an Air Quality Monitoring Committee to set a plan to improve Kolkata's air quality.⁸⁵ The committee issued the plan in 2018.⁸⁶

Although the Tribunal serves as the specialized environmental court in part due to the recommendation of Supreme Court,⁸⁷ the Supreme Court also plays a critical role in shaping the legal landscape on air pollution. Appeals of Tribunal decisions can be made directly to the Supreme Court,⁸⁸ including relating to the Water and Air Acts. Furthermore, the Supreme Court has been particularly active in limiting air pollution in Delhi. For example, the Supreme Court has ordered the construction of highways around the city and required heavy vehicles to pay a fee to pass through Delhi in order to reduce traffic;⁸⁹ and limited the use of pet coke and furnace oil.⁹⁰

Finally, public interest litigation (PIL) provides another avenue for environmental litigation in India. The Supreme Court recognizes a broad right to PIL, which allows individuals to bring suits where there may not have otherwise been standing.⁹¹ Standing requirements for PIL are relatively expansive; a petitioner is not required to have experienced a particular harm, or have personal knowledge of the circumstances. In some instances, the scope of litigation extends based on developing events. For example, in the *Delhi Vehicular Pollution Case*,⁹² a cornerstone PIL environmental case, the Supreme Court recently issued an order to divert heavy commercial traffic away from Delhi to reduce air pollution, although the case was filed in 1985.⁹³

2019 (In which the Tribunal ordered the Government of West Bengal to establish an Air Quality Monitoring Committee for Kolkata in connection with the National Ambient Air Quality Standards)

⁸⁵ In matter of News Item Published in "The Times of India" authorized by Shri Vishwa Mohan Titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around) Original Application 681 (2018)

⁸⁶ See "Comprehensive Air Quality Action Plan for Kolkata" by the Air Quality Monitoring Committee (Dec. 31, 2018)

⁸⁷ FAQs, NATIONAL GREEN TRIBUNAL, <https://greentribunal.gov.in/faqs>

⁸⁸ s.22 National Green Tribunal Act, 2010

⁸⁹ *MC Mehta v Union of India* (2016) 2 SCC 33

⁹⁰ *MC Mehta v Union of India* (2017) SCC 1378.

⁹¹ *Hussainara Khatoon v Home Secretary, State of Bihar* (1980) 1 SCC 81; AIR 1879 SC 1360 (Petitioner brought

⁹² *M.C. Mehta v Union of India*, No. 13029/1985

⁹³ Order, *M.C. Mehta v Union of India*, No. 13029/1985 (Dec. 16, 2015)

2.3 KMC Legal Authority to Regulate Air Quality

KMC has relatively limited power to regulate air quality at the local level given that most power to develop environmental policy is divided between the central and state governments. Nevertheless, the city can use its authority to deter use of solid fuels for cooking, regulate transportation within the municipality, manage waste disposal, and educate the public to help bring the city into compliance with national air quality standards.

The KMC Act empowers the KMC to manage waste services, construct and maintain streets, and to protect the environment and the health of the community.⁹⁴ Although its power to protect the environment and health may seem broad, some have suggested that this municipal power to protect the environment does not hold much water. The Indian Institute of Ecology and Environment, for example, has referred to these municipal powers over the environment as “weak.”⁹⁵ The KMC Act further authorizes the city to provide education and other public services, such as housing, at its discretion.⁹⁶ Furthermore, KMC does have some enforcement powers which it could exercise to advance air quality. For example, an order by the West Bengal Transport Department⁹⁷ prohibits all commercial vehicles older than fifteen years within the municipality. Through the Kolkata Police Force,⁹⁸ the city can enforce that standard, and ensure that newly registered cars meet fuel standards.

The state government enjoys much more power to regulate air quality, especially through the WBPCB. As noted above (see Section 2.1.2.1.3), the WBPCB can regulate fuel usage within the state; and monitor and shutdown polluting industries, under the directions of the CPCB. Other relevant state-level entities include the Kolkata Metropolitan Development Authority, which manages urban development in KMA, including KMC. As previously noted, regulating air quality at the state level may be more effective, especially since KMA contains a number of other local governments in addition to the KMC. Nevertheless, given the KMC’s regulatory authority, the city

⁹⁴ s.29 Kolkata Municipal Corporation Act, 1980

⁹⁵ “Environmental Policy and Constitutional Provisions in India” Indian Institute of Ecology and Environment <http://www.ecology.edu/environmental-policy.html>

⁹⁶ s.30 Kolkata Municipal Corporation Act, 1980

⁹⁷ No. 5958-WT/3M- 10/2018 dated 31.12.2018

⁹⁸ While the Kolkata Police Force is independent of the Kolkata Municipal Corporation (its leadership is appointed by the Government of West Bengal and the Commissioner of the Kolkata Police Force reports to the Home Minister of the State), for the purposes of this memo, it shall be considered as part of the city.

could undertake several policy avenues to improve air quality. The next section discusses these options.

3. LEGAL PATHWAYS FOR IMPROVING AIR QUALITY

Although the state government enjoys greater legal leverage in regulating air quality, and may be able to more effectively manage air pollution given the transboundary nature of air pollutants, KMC nevertheless can take action to curb air pollution in the city.⁹⁹ First, KMC could incentivize the use of less polluting cooking fuels. Second, KMC could manage roadways—expanding the road network, increasing the number of paved roads, and introducing street sweeping vehicles—to reduce vehicle exhaust emissions and road dust. Third, the city could expand waste segregation facilities in the city to reduce open-air trash burning. Fourth, the KMC could engage in a public awareness campaign to educate the public on risk avoidance. Fifth, public interest litigation provides an option for the city to pressure the state and central government to take more ambitious measures to curb air pollution through action brought by city residents. However, less contentious policy changes may be preferred, although significant environmental changes have resulted from litigation.¹⁰⁰

3.1 Regulation of Cooking

The burning of solid cooking fuels, specifically the use of coal and firewood, is one of the lead causes of air pollution in Kolkata.¹⁰¹ Road site eateries that rely on solid fuels in the commercial sector are common, and reliance in the residential sector on polluting fuels is common as well.¹⁰² KMC could

⁹⁹ Xinming and others suggest that a federal approach to improving air quality would be even more effective than a state-wide approach after finding that 46% of population-weighted air pollution exposure comes from sources outside the state. Xinming Du et al., *Cross-State Air Pollution Transport Calls for More Centralization in India's Environmental Federalism* 1 (Aug. 2020).

¹⁰⁰ See cases brought by environmental activist M.C. Mehta.

¹⁰¹ Majumdar, et al. “Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India,” *Atmospheric Environment*, Vol. 222, Art. 117, 15 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

¹⁰² *Id.* The residential sector, including domestic and commercial combustion, is the lead source of air pollutant emissions in the city. *Id.* at 4.

substantially improve air quality by incentivizing a transition to liquefied petroleum gas (LPG) and electricity, as described in in the State’s Comprehensive Air Quality Plan.¹⁰³ Other major Indian metropolitan areas, like Lucknow, have taken this approach.¹⁰⁴

Reducing the use of polluting cooking fuels would take a coordinated approach between the state, the WBCPB, and KMC. The state and WBCPB have the authority to regulate fuel usage in pollution control zones. The KMC possesses powers to manage urban growth and public health,¹⁰⁵ and should exercise those powers to establish infrastructure to provide LPG and electricity for domestic households, as well as for hotels and restaurants.¹⁰⁶ Securing access to alternative fuel sources makes any ban on the use of solid fuels in domestic and commercial cooking more effective. KMC sister city (the Howrah Municipal Corporation) was able to effectively ban the open burning of coal according to state officials,¹⁰⁷ and KMC has taken steps to ban open burning of coal and firewood as well.¹⁰⁸

Furthermore, KMC has the power to issue trade licenses,¹⁰⁹ and could leverage this power to tie commercial licenses for cooking to the use of clean fuels. Street-side eateries are common across the city, and this would provide an entry for a clean fuel transition. Again, the use of polluting cooking fuels is one of the lead causes of air pollution in the city, and thus KMC should prioritize enhancing

¹⁰³ “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg. 32 (Dec. 31, 2018)

¹⁰⁴ “Coal Burning Banned at Hotels, Restaurants in Lucknow” The Economic Times (Nov. 7, 2019) <https://energy.economictimes.indiatimes.com/news/coal/coal-burning-banned-at-hotels-restaurants-in-lucknow/71947812>

¹⁰⁵ s.30(s) Kolkata Municipal Corporation Act, 1980

¹⁰⁶ Increasing residential access to cleaner fuels would support deep decarbonization, in addition to creating health benefits. See P. SHUKLA ET AL., PATHWAYS TO DEEP DECARBONIZATION IN INDIA pg. 25-26 (2015)

¹⁰⁷ “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg.20 (Dec. 31, 2018). Howrah’s success may also have been attributable to its waste-to-power project. See “German Help for Waste-to-Power Project in Howrah” Times of India (Oct. 28, 2014) <https://timesofindia.indiatimes.com/city/kolkata/German-help-for-waste-to-power-project-in-Howrah/articleshow/44953153.cms>

¹⁰⁸ “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg.20 (Dec. 31, 2018)

¹⁰⁹ s.199 Kolkata Municipal Corporation Act, 1980

access to alternative fuels (in terms of infrastructure and pricing), and banning the use of solid fuels for cooking.

3.2 Regulation of Roadways

The KMC has the authority to regulate roadways within the city, including the construction and maintenance of roadways,¹¹⁰ and can use this authority to reduce road dust—by maintaining and improving roads. Regulating road dust would significantly contribute to improving air quality since road dust is the second largest contributor to air pollutant emissions in Kolkata.¹¹¹ KMC currently manages road dust by sprinkling water at major intersections, and the city should continue this practice. Other options include cleaning roads (e.g. with road sweeping vehicles); paving roads, and laying gravel on unpaved roads. KMC already makes some efforts to pave city streets, and should continue this initiative as well.

Vehicular exhaust emissions are less significant for Kolkata’s air quality than road dust or cooking-related emissions,¹¹² but are significant enough that the city should consider regulating them.¹¹³ Ensuring the smooth flow of traffic can reduce vehicular emissions.¹¹⁴ To ensure the smooth flow of traffic, KMC can coordinate with the Kolkata Police Force to prevent jaywalking¹¹⁵ and

¹¹⁰ s.29(e)-(g) Kolkata Municipal Corporation Act, 1980. Note that the West Bengal Transport Department regulates vehicular use on public roads, and has used that power to prohibit commercial vehicles older than fifteen years in the city. West Bengal Transport Department Notification No. 5958-WT/3M- 10/2018 (Dec. 31, 2018)

¹¹¹ Majumdar, et al. “Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India,” *Atmospheric Environment*, Vol. 222, Art. 117,135 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

¹¹² Majumdar, et al. “Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India,” *Atmospheric Environment*, Vol. 222, Art. 117 pg.4 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

¹¹³ “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg. 7 (Dec. 31, 2018)

¹¹⁴ Tang et al. “Assessing the Impact of Vehicle Speed Limits and Fleet Composition on Air Quality Near a School”, *International Journal of Environmental Research and Public Health* (2019) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6339126/>

¹¹⁵ “Is Jaywalking Really a ‘Crime’ in India?” *Times of India* (Mar. 6, 2020) (While there is no crime of ‘jaywalking’ in the Indian Penal Code, it is often included within crimes of ‘obstruction of traffic’ and like offenses)

unauthorized parking on public thoroughfares which restricts the flow of traffic. Another way to reduce vehicular emissions would be to coordinate with the Kolkata Police Force to enforce the prohibition on the use of commercial vehicles older than 15 years within the city.¹¹⁶ Creating parking alternatives—via constructing multi-level parking decks—would also enhance traffic flow.¹¹⁷ Yet increasing traffic speed can increase road dust,¹¹⁸ thus these measures must be balanced against each other.

Furthermore, there are practical limits to expanding roadways in Kolkata. Although narrow roads and low road density¹¹⁹ exacerbate air pollution in the city, the city has limited space for further road expansion. Thus, expanding its already relatively high-quality public transportation network,¹²⁰ would be efficient. However, public transportation (as well as the regulation of vehicular use on public roads) falls under the mandate of the West Bengal Transport Department. Coordination with this state entity would therefore be integral.

3.3 Regulation of Solid Waste

Although improper waste management is not the lead cause of air pollution in Kolkata, waste and open burning nevertheless account for fairly significant amounts of pollution in Kolkata, including

<https://timesofindia.indiatimes.com/india/is-jaywalking-really-a-crime-in-india/articleshow/74224967.cms>

¹¹⁶ West Bengal Traffic Department, No. 5958-WT/3M- 10/2018 dated 31.12.2018. The Government of West Bengal also decided to introduce electric buses to decrease vehicle emissions. See “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg. 17 (Dec. 31, 2018)

¹¹⁷ The Comprehensive Air Quality Action Plan for Kolkata recommends that KMC “insist on either underground or multitier parking arrangement within the premises while sanctioning building plans for Malls etc.” “Comprehensive Air Quality Action Plan for Kolkata” by the Air Quality Monitoring Committee at pg. 17 (Dec. 31, 2018)

¹¹⁸ Quantifying the Impacts of Vehicle-Generated Dust: A Comprehensive Approach, Department for International Development, The World Bank (2011) <https://pdfs.semanticscholar.org/8bed/e287118b98062c8b050bbb5b667d13ebaa7c.pdf>

¹¹⁹ “Kolkata”, Centre for Science and the Environment (Kolkata has less than 10% of its land dedicated to roads compared to Delhi’s 21% and as a result traffic speeds average 18kph) <https://www.cseindia.org/kolkata-1748>

¹²⁰ Ease of Moving Index, Ola Mobility Institute (2018) <https://ola.institute/ease-of-moving/>

through the emission of organic carbon and carbon monoxide.¹²¹ KMC has the authority to manage solid waste disposal,¹²² and should leverage that authority to reduce air pollutants from solid waste disposal.

The Solid Waste Management Rules, 2016 (SWM Rules) require local authorities to establish systems to segregate, dispose, and reuse waste where possible.¹²³ The KMC prohibits the burning of solid waste, including dried leaves through the issuance of Circulars/Orders to the Solid Waste Management Department of the Corporation.¹²⁴ KMC should continue to enforce this ban.

The city should also develop new waste sites. Currently, KMC has insufficient infrastructure for waste disposal. The only major landfill in Dhapa, receives more than 3,000 metric tons of waste every day.¹²⁵ Because the amount of waste the Dhapa landfill receives exceeds capacity, waste there is frequently burned, causing significant air pollution in nearby areas.¹²⁶ Thus the development of additional landfill/waste treatment facilities is paramount, and one has already been proposed in Rajarhat.¹²⁷

Proper segregation of waste would also alleviate pressure on landfills and individuals to burn waste. The SWM Rules require households to segregate waste,¹²⁸ but few households have the capacity to do so. As of February 2019, only 7 of the city's 144 wards had access to separate waste bins for recyclable and non-recyclable materials. As of last year, the city had only planned to provide separate waste bins for twenty additional wards.¹²⁹ Taking steps to improve the waste segregation

¹²¹ Majumdar, et al. "Managing Future Air Quality in Megacities: Emission Inventory and Scenario Analysis for the Kolkata Metropolitan City, India," *Atmospheric Environment*, Vol. 222, Art. 117 (Feb. 1, 2020) <https://www.sciencedirect.com/science/article/pii/S1352231019307745>

¹²² s. 20 Kolkata Municipal Act, 1980

¹²³ s.15 Solid Waste Management Rules, 2016

¹²⁴ "Comprehensive Air Quality Action Plan for Kolkata" by the Air Quality Monitoring Committee at pg. 20 (Dec. 31, 2018)

¹²⁵ Koushik et al. A comprehensive study on landfill site selection for Kolkata City, India. *Journal of the Air & Waste Management Association*. (2014).

¹²⁶ Doshi, "The Kolkata dump that's permanently on fire: 'Most people die by 50'", *The Guardian* (Oct. 24, 2016)

¹²⁷ Das, "Kolkata Yet to Find Way Out of Mess", *Decon Herald*

¹²⁸ s.4 Solid Waste Management Rules, 2016

¹²⁹ Roy, "Waste Segregation in 20 More Calcutta Wards" *Telegraph India* (Feb. 16, 2019)

system so that recyclable material does not end up in the landfill would also help households manage waste, and reduce their need to burn it.

3.4 Public Education/Air Quality Index System

KMC should consider following the lead of other Indian cities, including Ahmedabad,¹³⁰ who have paired risk communication projects with air quality indexes to inform the public of air quality risks and strategies for harm mitigation. The WBPCB and CPCB already run a number of air monitoring stations in Kolkata. Yet the pollution data that these stations produce could be more effectively conveyed to the public, by making the data more digestible and applicable at the household level. Further broadcasting air quality indexes beyond what is already broadcast through news sources would also support greater public awareness around air quality.

Kolkata could model a public-facing risk communication project based on Ahmedabad's efforts. The Ahmedabad Municipal Corporation's Color Signal System allows individuals to check the air pollution status in the city. Vulnerable individuals can sign up for notifications of high risk days through WhatsApp and text messages.¹³¹ Ahmedabad also plans to work with schools to put up flags color-coded according to the day's air quality. KMC could use its authority to engage in furthering education¹³² in order to launch a public-facing risk communication project to inform city dwellers of air quality status and risks.

KMC's public awareness efforts should also target local private and public healthcare providers. This would help ensure that public health actors know the causes and symptoms of air pollution related illness, and are educated on the treatment and prevention of those illnesses. Such an information system would therefore benefit the local population in myriad ways.

¹³⁰ Ahmedabad Air Information & Response Plan, Natural Resources Defense Council (Dec. 2018)

https://www.nrdc.org/sites/default/files/air_plan_2018_dec3_v2.pdf

¹³¹ Id.

¹³² s.30(a) Kolkata Municipal Corporation Act, 1980

3.5 Public Interest Litigation

A relatively low threshold for meeting standing requirements makes public interest litigation a feasible, although perhaps politically unpopular, avenue for advancing environmental law and policy. In general, public interest litigation in India has played a crucial role in shaping environmental law and policy. For example, significant cases include the Taj Mahal Pollution Case¹³³ and the Delhi Vehicular Pollution Case.¹³⁴ Cities do not commonly launch lawsuits against the central and state government, but they do sometimes intervene in litigation brought by members of the public.

Kolkata could look to the courts to advance clean air, especially by supporting public interest litigation brought by city residents. However, courts are not an ideal avenue for developing clean air policy at the municipal level. Judicial orders may not be economically feasible, or well-suited to advance clean air.¹³⁵ Although standing requirements are so liberal such that anyone asserting a violation of a fundamental right can file a suit in an appellate court,¹³⁶ leveraging other opportunities for improving air quality in Kolkata would lead to more direct results.

4. CONCLUSION

Given the transboundary nature of air pollutant emissions, a nation-wide approach to improving air quality might be most efficient. The legal authority of state governments, especially through SPCBs, also favors at least a state-wide approach to dramatically improving air quality in India, and reducing significant health and environmental impacts. Nevertheless, local governments do have the opportunity to complement federal and state-level approaches. KMC, in particular, has authority to promote public health, construct and maintain roadways, manage solid waste, and educate the public, and should use this authority to enact measures that would improve air quality in the city, especially given that residents face some of the highest exposures to air pollution nation-wide.

¹³³ *M.C. Mehta v Union of India*, WP (Civil) No. 13381/1984

¹³⁴ *M.C. Mehta v Union of India*, WP (Civil) No. 13029/1985

¹³⁵ Rajamani, “Public Interest Environmental Litigation in India”, *Journal of Environmental Law*, Vol. 19, No. 3 (2007) – *Delhi Vehicular Pollution Case*

¹³⁶ Zachary Holladay, *Public Interest Litigation in India as a Paradigm for Developing Nations*, 19 *Ind. J. Global Legal Studies* 555, 558 (2012).