Clean Air Network
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Submission in response to the Public Consultation for the 2025 Policy Address

Executive Summary

Established in 2009, Clean Air Network is the only dedicated air-issue focused NGO in Hong Kong. Over the past 16 years, CAN has been playing a pivotal role in creating a wide range of favorable factors for pursuing the vision of "Clean Air for All" through constructive dialogues and integrating resources.

Over the past decade, Hong Kong has made significant progress in enhancing ambient and roadside air quality. With shifting public health risks and demographic changes, it is imperative that we continue to strengthen the clean-air efforts. Specifically, as there is lack of systematic and sufficient management of indoor air quality across places in Hong Kong, it poses considerable risks especially to vulnerable groups such as children, the elderly, and individuals with pre-existing health conditions. We urge the Government to take a pro-active approach to address emerging threats to further enhance public health.

We believe the Policy Address should outline the Government's plans to achieve clean air for all in Hong Kong in the following areas –

1. Continuing to Tackle Air Pollution Issues to Enhance Public Health

a) Despite improvements, Hong Kong's ambient and roadside air quality continues to lag behind other major cities. In 2023, the city achieved only 75% of its short term Air Quality Objectives (AQOs) with significant gaps in Nitrogen Dioxide and Ozone levels. Notably, in 2024, the roadside Nitrogen Dioxide exceeded the World Health Organization's most stringent standards by 550%.

b) Lung cancer remains the leading cause of death in Hong Kong[1], and air pollution contributes significantly to other serious health issues, including:

- Other cancers, such as blood and bone cancers[2].
- Respiratory infections, heart attacks, strokes, and premature births.

[1] Centre for Health Protection, Department of Health, HKSAR Government (2025). Lung Cancer. [Online] Available at: https://www.chp.gov.hk/en/healthtopics/content/25/49.html [Accessed 2025]
[2] Union for International Cancer Control (2024). Cancer and Air Pollution. [Online] Available at: https://www.uicc.org/what-we-do/thematic-areas/cancer-and-air-pollution [Accessed 2025]

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Clean Air Network is a company with limited liability and a registered charity in Hong Kong

- Chronic conditions, such as allergies, asthma, dementia, and diabetes[3] (pre-diabetes and diabetes risks from long-term exposure).

The situation is particularly dire for vulnerable groups such as children, the elderly, individuals with pre-existing conditions, and low-income communities. Furthermore, air pollution undermines the productivity and attractiveness of Hong Kong as a tourism, business and international financial hub. The expected increase in climate-induced extreme events will likely exacerbate air pollution levels, posing further public health challenges.

It is therefore crucial to continuously implement effective measures to control the level of air pollution, or the public health gains due to past efforts will soon be offset by demographic shifts.

2. Strengthening Measures to Address Ambient and Roadside Air Quality

a) Tightening the Air Quality Objectives (AQOs): Ensure continuous tightening of AQOs, aligning with WHO's most stringent standards.

b) Formulating a Green Transformation Roadmap for All Land Transport to ensure achievement of the long-term goal of zero vehicular emission by 2050.

c) Formulating an Action Plan to address Regional Ozone: Based on the study of ozone formation in the Greater Bay Area, develop and implement effective strategies.

a) Formulating a roadmap to advance Marine Electrification: Shipping remains the largest local emission source of several key pollutants. Marine electrification, comprising Onshore Power Supply (OPS) for berthed vessels and the electrification of harbour craft, is a vital and viable strategy to further reduce air pollutants and health risks for the near-port population.

3. Addressing Indoor Air Quality (IAQ)

a) Historically, policy discussions in Hong Kong have focused on ambient and roadside air quality. However, Indoor Air Quality (IAQ) is equally significant, especially post-Covid-19, as more people spend the majority of their time

[3] Diabetes Care. (2024). Life Course Associations Between Ambient Fine Particulate Matter and the Prevalence of Prediabetes and Diabetes: A Longitudinal Cohort Study in Taiwan and Hong Kong. [Online] https://doi.org/10.2337/dc24-1041 [Accessed 2024].

indoors. Recent findings indicate a shift in public health risk profiles from ambient to indoor pollution, primarily due to volatile organic compounds (VOCs).

b) To combat communicable diseases, especially those transmitted via air, strengthening indoor air quality control is paramount. This is particularly crucial for vulnerable groups housed in aging buildings with poor IAQ, such as nurseries, child care centres, and elderly homes.

c) Tackling IAQ with an Inter-Bureau and Departmental Approach: Formulate objectives and work plans involving various bureaux and departments.

d) Legislating for IAQ: Amend the Air Pollution Control Ordinance to include IAQ objectives, prioritize stringent standards, and conduct regular reviews.

e) Developing Support for Pre-Schools and Hospitals: Develop guidelines for spaces that are frequently visited by the vulnerable groups, including the children and patients.

f) Setting Role Models for Data Transparency: Implement continuous monitoring and publishing of IAQ data in all Government buildings.

g) Expanding the IAQ Certification Scheme: Include premises without mechanical ventilation and air conditioning systems.

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Full Recommendations

1. Continuing to tackle air pollution issues to enhance public health

1.1 Despite improvement in recent years, Hong Kong ambient and roadside air quality is still worse than other major cities. In 2022, Hong Kong only achieved 75% of our AQOs, leaving significant gaps in meeting the target Nitrogen Dioxide and Ozone levels. The level of Nitrogen Dioxide at the roadside is 530% above World Health Organization's most stringent standard[4].

1.2 Based on the Clean Air Plan 2035, it is suggested that continuous effort to be made to address air quality issue holistically with inter-bureau and inter-departmental collaboration, and include local and regional experts from air science, health, transport, development, etc, during policy review and development, along the six key areas, namely Green Transport, Liveable Environment, Comprehensive Emissions Reduction, Clean Energy, Scientific Management and Regional Collaboration,

2. Strengthening measures to address ambient and roadside air quality

2.1 In overall, we urge the Government to continue tightening of the Hong Kong's Air Quality Objectives ("AQO") until they are levelled with the World Health Organization's most stringent standard, provide provision of new energy infrastructure to support the adoption of new energy vehicles, provide action plans to control Ozone at ambient level, and to further lower ship emissions.

b) Tightening the Air Quality Objectives

- The Air Pollution Control Ordinance requires the Government to review the AQOs, the standards for various air pollutants in Hong Kong at least once every five years. However, the current review mechanism does not guarantee the tightening of the standards. Without stricter AQOs, there is a lack of robust policy drivers to significantly improve air quality over time.

- In order to ensure the long-term goal of levelling Hong Kong's air quality with the World Health Organization's most stringent standard can be achieved as soon as possible, during the current and future reviews of the Air Quality

[4] Clean Air Network. (2025). Annual Air Quality Review 2024. [Online] https://hongkongcan.org/press-release/annual-air-quality-review-2024-pollution-reduced-but-still-incurred-high-health-and-economic-costs/ [Accessed 2025]

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Objectives, we recommend the Government take a pro-active approach to ensure tightening of the target for each pollutant by at least one level under the guidelines of the World Health Organization each time.

c) Promotion of adoption of new energy vehicles

- Despite general improvements in ambient and roadside air quality over the last decade, roadside nitrogen dioxide and ambient ozone levels remain high. To further improve roadside air quality and reduce carbon emission from transport sector, the Government planned to introduce 700 electric buses (around 12% of all buses[5]) and 3,000 electric taxis (around 17% of all taxis) by 2027[6].

- The Government expressed its confidence in reaching the target of zero vehicular emission for franchised bus and taxis before 2050, and committed to install 3,000 fast chargers by 2030 and conduct second and third review of supply and demand of the overall charging infrastructure at 2032 and 2037.

- While we agree the Government's approach to assess the charging needs of not only e-buses and e-taxis but also all land transport vehicles at a macro level, in order to ensure that Hong Kong is on the track to achieve zero vehicular emission, we recommend the Government to:

    - Provide annual reports of the progress of conversion to zero emission vehicles of all land transport, including franchised buses, taxis, non-franchised buses, minibuses, light, medium and heavy duty commercial vehicles, motorcycles, etc.

    - Introduce comprehensive Green Transformation Roadmap to enhance the adoption of zero emission vehicles of all land transport, including trucks, lorries, non-franchised buses, and public light buses.

- The Government planned for the release in the first half of 2024 of a citywide green transformation roadmap and timetable for public buses and taxis[7], but

[5] HKSAR Government. (2024). Hong Kong: The Facts. [Online] https://www.gov.hk/en/about/abouthk/factsheets/docs/transport.pdf [Accessed 2025]
[6] HKSAR Government. (2022). The Chief Executive's 2022 Policy Address. [Online] https://www.policyaddress.gov.hk/2022/public/pdf/policy/policy-full_en.pdf [Accessed 2025]
[7] HKSAR Government. (20223). The Chief Executive's 2023 Policy Address. [Online] https://www.policyaddress.gov.hk/2023/en/p86a.html [Accessed 2025]

such a roadmap has still not been made available. The Government should release the roadmap as soon as possible.

- In the 2022 Policy Address, the Chief Executive announced trials of new generation electric taxis, as well as hydrogen fuel cell electric double-deckers and heavy vehicles, to be completed by 2025[8]. The Government has also started a trial of electric public light buses in March 2024[9].

- We recommend the Government provide updates about and release data from the trials, and include school buses, coaches and medium and heavy goods vehicles in the trials.

- For hydrogen vehicles, we welcome the release of the Strategy of Hydrogen Development in Hong Kong in June 2024. We understand that hydrogen buses are now allowed in tunnels[10]; we recommend the Electrical and Mechanical Services Department provide updates on its work on the potential new Gas Safety (Hydrogen) Regulations, Cap. 51H to govern the use of hydrogen as a fuel[11].

d) Formulating an Action Plan based on the Completed Study on Regional Ozone

- The Environmental Protection Department also launched a 3-year study (2021-24) titled "Characterization of Photochemical Ozone Formation, Regional and Super-regional Transportation in the Greater Bay Area" in 2021. The study aims to identify the distribution and transport pathways of ozone and its precursor pollutants through scientific data analysis for formulating the policies and measures for control of regional ozone level. We recommend the Government to formulate and release a roadmap and action plan to control ozone pollution, which surged to a 20-year record high in 2023.

e) Marine Electrification

[8] See note 15 above.
[9] HKSAR Government. (2024). Legislative Council Question “LCQ11: Promoting green transformation of public land transport”. [Online] https://www.info.gov.hk/gia/general/202406/19/P2024061900193.htm [Accessed 2025]
[10] Radio Television Hong Kong. (2024). “Hydrogen bus makes maiden cross-harbour trip” [Online] https://news.rthk.hk/rthk/en/component/k2/1761546-20240714.htm [Accessed 2025]
[11] Hong Kong Electrical and Mechanical Services Department. (2024). Consultation Paper: Proposed Amendments to the Gas Safety Ordinance (Cap. 51). [Online] https://www.emsd.gov.hk/filemanager/en/content_1519/GSO_consult_2024_1.pdf [Accessed 2025]

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Despite overall improvements in air quality, shipping remains the largest local emission source of NO2, PM10, and PM2.5. Elevated NO2 concentrations have been persistently recorded in districts with key port facilities, such as Kwai Chung, directly linked to emissions from marine vessels and posing serious health risks to nearby residents and workers.

Currently, Hong Kong has no specific legislation regulating NOx emissions from ships. Marine electrification is a critical strategy to address this gap, reduce public health risks, and further the government's goal of developing Hong Kong as a green shipping hub.

Marine electrification encompasses two key components:

Onshore Power Supply (OPS) for Ocean-Going Vessels (OGVs)

- OGVs often run auxiliary engines while docked to power onboard systems, resulting in significant near-port emissions of SO2, NOx, and PM.

- Global competitors are moving decisively to mitigate this; Mainland China aims for 90% shore power coverage for key container terminals by the end of 2025, and the majority of European ports plan to offer OPS by 2030[16].

- Without a clear OPS development strategy, Hong Kong risks losing its competitive edge to newer, OPS-enabled ports. A 2015 feasibility study confirmed the technical viability of OPS at the Kai Tak Cruise Terminal, and its implementation there and at the Kwai Chung Container Terminal could eliminate thousands of tons of harmful pollutants annually[17] .

Electrification of Harbour Craft and Domestic Vessels

- Local vessels and river vessels account for approximately 60% of NOx and 50% of PM10 of total maritime emissions in Hong Kong.

- Many of these harbour craft use outdated engines that pollute disproportionately compared to their modern land-based counterparts. Zero-emission propulsion technology is increasingly viable for these vessels . While barriers like high upfront costs and limited charging infrastructure exist, they can be overcome with clear government policy and intervention.

- The government's Pilot Scheme for Electric Ferries, initiated in 2025, is a positive step, and its findings should inform a broader strategy for vessel electrification, including for the government's own fleet[18].

To capitalize on these opportunities, we recommend the Government:

- Formulate a comprehensive OPS development policy and implementation timetable - The Environment and Ecology Bureau should lead the development of a clear policy direction to enhance infrastructure readiness, coordinate with power grids, and provide the regulatory leadership necessary for investment .

- Formulate a strategy and roadmap for the electrification of harbour craft and domestic vessels - This should include plans for shore charging infrastructure and incentives to accelerate adoption, moving beyond the current electric ferry pilot scheme[18] . The Government should also lead by example by setting a clear timeframe to electrify its own marine fleet .

- Establish regional coordination on marine emissions with Greater Bay Area (GBA) authorities - Given the high volume of cross-boundary vessel traffic, a regional strategy to advance vessel electrification, coordinate incentives, and align protocols for green shipping corridors is essential for tackling shared air quality challenges .

- Advance research to quantify marine emissions and the benefits of policy measures - The Environmental Protection Department should commission research to obtain precise, up-to-date emission factors for ships operating in Hong Kong waters to produce robust estimates of how marine electrification will improve air quality .

3. Addressing Indoor Air Quality (IAQ)

3.1 Policy discussions in Hong Kong over the past decade have so far focused on ambient and roadside air quality, however, IAQ is as important. After Covid-19, most people spend the majority of their time indoors. Recent scientific findings indicate that ambient volatile organic compounds (VOCs) have surpassed diesel particulate matter (PM) as the primary inhalation cancer risk in Hong Kong[12]. It is generally believed that most ambient VOCs come from indoor environments.

[12] Atmospheric Environment, 314. (2023). Wong et al., “Characterization of toxic air pollutants in Hong Kong, China: Two-decadal trends and health risk assessments”. [Online] https://doi.org/10.1016/j.atmosenv.2023.120129 [Accessed 2025]

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The Government should take note that the public health risk profile has shifted from ambient to indoor pollution source.

3.2 In response to Covid-19, the Government has committed to “Strengthen Capacity to Combat Communicable Diseases”. As most communicable diseases are transmitted via air as the medium, it is important to strengthen air quality control especially indoor places where vulnerable communities stay, with high density of occupants or prolonged period of stay.

3.3 With more aging buildings in Hong Kong, the worsening indoor environment, including the under-managed indoor air quality, would continue to threaten the health and well-being of the occupants. It is particularly important to ensure good IAQ among places where the vulnerable communities spend a lot of time in, including the nurseries, child care centres, elderly homes, etc.

3.4 In order to "Attract and Retain Talent", strengthen Hong Kong's role as "International Financial Centre", "Care for the Elderly", foster a "Caring and Inclusive Community", and to achieve the vision of “Healthy Living. Low Carbon Transformation. World Class” set out in the Clean Air Plan 2035, CAN calls upon the Government to reassess the approach to tackle air quality comprehensively to include ambient, roadside and indoor air quality.

3.5 Specifically, we recommend the Government to establish a comprehensive roadmap to manage IAQ. The roadmap should take consideration of the below.

a) Tackling IAQ with an Inter-Bureau and Departmental Approach

- Since IAQ policy would involve the contribution of experts at various bureaux and departments, particularly those responsible for and specialise in the environment (Environment and Ecology Bureau (EEB) and EPD), health (Department of Health), buildings (Architectural Services Department and Development Bureau), engineering (Electrical and Mechanical Services Department).

- We recommend the Government formulate the objectives and work plan for the Inter-Departmental IAQ Management Group[13].

b) Legislating for IAQ

[13] See Appendix I for the list of bureaux and departments in the Inter-Departmental IAQ Management Group.

- The Air Pollution Control Ordinance, Cap. 311 should be amended to include IAQ objectives in the long run, with more stringent standards prioritized for places where vulnerable groups stay.

- Since a one-off revision of the IAQ objectives in the voluntary IAQ Certification Scheme in 2019[14], the Environmental Protection Department (EPD) has not updated the objectives.

- We recommend a regular review of the indoor air quality objectives, similar to the Air Quality Objectives review for ambient air quality, provided by the Air Pollution Control Ordinance.

- Specifically, the IAQ objectives in the IAQ Certification Scheme do not currently include one for PM2.5[15], although the WHO has pointed out that there is no convincing evidence of a difference in its hazardous nature from indoor sources as compared with those from outdoors sources. We recommend the inclusion of PM2.5 in the IAQ objectives.

- Several jurisdictions around the world have adopted mandatory regulations and policies for indoor air quality management. For example, South Korea has legislated on IAQ since 1998. South Korean legislation mandates IAQ monitoring in public spaces and more stringent IAQ standards for vulnerable groups such as children and the elderly[16], as well as the use of air purifiers in schools[17].

c) Developing Support for Pre-Schools and Hospitals

- The Government's Indoor Air Quality Management Group should also develop guidelines for pre-schools, hospitals and clinics, in addition to the existing guidance notes for schools and elderly homes[18].

[14] Hong Kong Environmental Protection Department. (2025). Background of IAQ Certification Scheme. [Online] https://www.iaq.gov.hk/en/iaq-certification-scheme-background/ [Accessed 2025]
[15] Hong Kong Environmental Protection Department. (2021). Update of the IAQ Objectives. [Online] https://www.iaq.gov.hk/wp-content/uploads/2021/04/annex-summary-of-old-and-new-iaqos_eng_v2.pdf [Accessed 2025]
[16] Statutes of the Republic of Korea. (2024). Articles 12 and 5(2), Indoor Air Quality Control Act. [Online] https://elaw.klri.re.kr/eng_mobile/viewer.do?hseq=63632&type=part&key=39 [Accessed 2025]
[17] ECOLEX. (2024). Article 4-3, School Health Act. [Online] https://www.ecolex.org/details/legislation/school-health-act-lex-faoc219769/ [Accessed 2025]
[18] Hong Kong Environmental Protection Department. (2022). Guidance Notes for the Management of IAQ in Schools and Elderly Homes. [Online]

d) Setting Role Models for Data Transparency

- In its Clean Air Plan 2035, the Government stated that it would apply micro-sensors to monitor indoor air quality[19]. We believe the Environment and Ecology Bureau (EEB) should continue to collect and release IAQ data on an ongoing basis for the public to understand the level of risk across the city.

- Also, we recommend all Government buildings should implement continuous monitoring and reporting of IAQ data to demonstrate good practices.

e) Expanding the IAQ Certification Scheme

- Currently, the IAQ Certification Scheme only applies to premises with a mechanical ventilation and air conditioning (MVAC) system and excludes places with only window-type or split-type air conditioners[20], which means that many places, including schools and elderly homes, are not eligible.

- With growing interest among various sectors to enhance IAQ management, the EPD should expand the IAQ Certification Scheme to allow schools and elderly homes to participate.

https://www.iaq.gov.hk/en/resources-guidance-notes-for-the-management-of-iaq-in-schools-and-elderly-homes/ [Accessed 2025]

[19] Hong Kong Environment Bureau, et al. (2021). Clean Air Plan for Hong Kong 2035. [Online] https://www.eeb.gov.hk/sites/default/files/pdf/Clean_Air_Plan_2035_eng.pdf [Accessed 2025]

[20] Hong Kong Environmental Protection Department. (2025). Applicability of IAQ Certification Scheme. [Online] https://www.iaq.gov.hk/en/iaq-certification-scheme-background/ [Accessed 2025]

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Appendix I: Members of the Inter-Departmental IAQ Management Group

Civil Service Bureau
Education Bureau
Environment Bureau
Food and Health Bureau
Transport and Housing Bureau
Architectural Services Department
Buildings Department
Customs and Excise Department
Department of Health
Electrical and Mechanical Services Department
Environmental Protection Department (the Chairman)
Fire Services Department
Food and Environmental Hygiene Department
Government Property Agency
Housing Department
Labour Department
Marine Department
Social Welfare Department
Transport Department[21]

[21] Hong Kong Indoor Air Quality Management Group. (2019) Guidance Notes for the Management of Indoor Air Quality in Offices and Public Places. [Online] https://www.iaq.gov.hk/wp-content/uploads/2021/04/gn_officeandpublicplace_eng-2019.pdf [Accessed 2025]