



ANNUAL REPORT

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We envision Hong Kong to become a world-leading clean air city meeting WHO air quality standards.



Since 2009, Clean Air Network (CAN) is a non-profit organisation with charitable status, exclusively dedicated to improving Hong Kong's air quality. Led by our three key pillars of work, Advocacy, Empowerment and Knowledge, CAN's mission is to tackle air pollution for the dual goals of improving public health and combating the climate crisis.

OUR VISION

CAN's vision is to drive positive progress in bringing Hong Kong's air quality in line with the World Health Organisation's (WHO) recommended safety levels in order to benefit public health and mitigate climate change. To achieve our mission, CAN focuses on building knowledge, forging strategic collaborations and advocating for solutions across multiple sections of society in Hong Kong. Without losing sight on the issue of air pollution from regional activities, marine vessels and power plants, our current primary focus is on roadside pollution and indoor air impact.

OUR STORY

Since 2019, Clean Air Network has been relentlessly leading the air quality movement in Hong Kong.

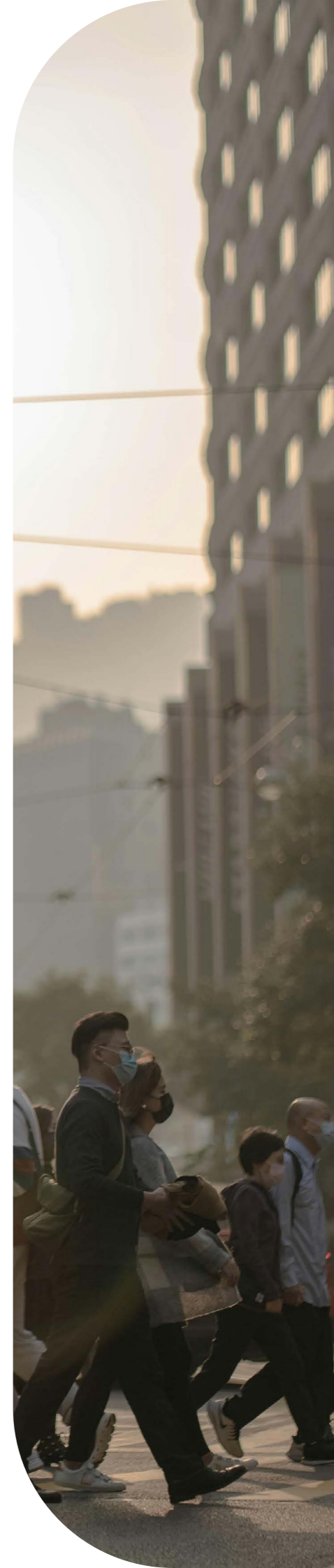
Over the past 14 years, the organisation has weaved together different sections in society, from professionals to academia, policymakers and the community. This has led to the building of a collaborative, cross-disciplinary and intergenerational network held together by the goal of making clean air a reality in Hong Kong.

In recent years, CAN is proud to have paved the way for landmark policy changes to take place in Hong Kong since 2014, which has reduced the concentration of the major air pollutants at ambient and roadside levels. In 2017, the first-ever government-led walkability study was conducted in the city, after

our ongoing campaigning efforts. Since then, our work has focused on raising awareness about the need to review and tighten Hong Kong's regulatory framework to limit air pollution, such as the Air Quality Objectives.

In the post-pandemic era, our work has become increasingly important and awareness of the importance of air quality to human health is at the forefront of public conversation. On the back of this momentum for change, CAN continues its commitment to foster greater cross-sector collaboration, education and action on what we believe is a right:

— Clean Air for All.



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MESSAGE FROM CEO



Dear friends,

As we reflect on the past year, we are proud to be able to showcase our positive impact. Major milestones have been reached through our three key pillars: Advocacy, Empowerment, & Knowledge.

Under our Advocacy pillar, we have taken significant strides towards a zero-emission future for Hong Kong's transportation sector. Through collaboration with industry stakeholders, our Zero Emissions Mobility Consortium (ZEMC) has laid out six crucial policy recommendations for the Government, pushing us closer to our carbon neutrality target by 2050.

Our Empowerment pillar has strengthened communities through initiatives like Clean Air Neighbourhood Carry On!, which engaged schools and families in tackling air pollution at a grassroots level. Positive outcomes from this project, such as increased community awareness and student participation, underscore the importance of local action.

In our pursuit of Knowledge, we have launched educational campaigns and projects like our Knowledge Series and 'On Air' Art Project, sparking public discourse and creative solutions to combat air pollution. Our 2022 Annual Air Quality Review highlighted the urgency of our work, with clear recommendations for bold policy measures to safeguard public health and our environment.

As we move forward, we remain steadfast in our dedication to clean air for all for Hong Kong. Through collaboration, we believe it is possible to make a lasting impact on air quality and build a more sustainable city for generations to come.

Thank you for your continued support in our shared mission.

———— **PATRICK FUNG**
Chief Executive Officer

KEY PILLARS

Our work continues to be led by our three key pillars:

ADVOCACY



EMPOWERMENT



KNOWLEDGE

These three pillars represent CAN's vision to improve Hong Kong's air quality, in order to address the dual and interconnected impacts of air pollution on public health and climate change.

Over the past year, CAN has undertaken numerous projects and activities designed with these pillars in mind.

From campaigning for a zero-emission future to aid Hong Kong's net-zero and climate commitments, to empowering the community with clean air knowledge and practical actions, CAN believes that all of these projects are part of a comprehensive effort to clean up Hong Kong's air.



PILLAR 1

ADVOCACY

Championing a Pathway to a Zero Emission Future

ADVOCACY

EMPOWERMENT

KNOWLEDGE

1.1 Getting Ahead to a Zero Emission Future

OVERVIEW

In July 2022, CAN made a significant step forward in the push for zero-emission transport in Hong Kong. As part of our Advocacy pillar, we collaborated with multiple industry stakeholders, including academic, power companies, major franchised bus operators, researchers and non-profit organisations, with the view of gathering views on the issue of decarbonising Hong Kong's transport system.





KEY POLICY RECOMMENDATIONS

For Hong Kong to get ahead to a zero-emission future, CAN and the other members laid out six key policy recommendations for the Government to engage in:

- Set a clear, time-specific zero-emission roadmap for the road transport sector, in which new registration for internal combustion engine (ICE) vehicles are banned by 2032.
- Speed and scale up trials for battery electric buses (BEBs) and hydrogen fuel cell buses in collaboration with franchised bus operators, with the view of promoting feasible investments on a technological and operational level.
- Remove regulatory hurdles for technological development and adoption.
- Identify the main gaps in cross-bureau policy coordination.
- Define appropriate funding structure for commercial operators to support the implementation of the zero-emission roadmap.
- Invest in achieving a 5% quantified modal shift target to public transport, with the view of curbing air pollutants, using initiatives employed in other major cities such as road congestion charging, bus priority in tunnels and congested corridors, and Bus Rapid Transit systems.

The publication of our Zero Emissions Mobility Consortium (ZEMC) white paper was the culmination of nine meetings held from July 2021 to June 2022. Over each ZEMC meeting, members discussed a wide variety of challenges and opportunities for Hong Kong's transportation sector, all with the goal of realising the city's zero-emission ambitions for road transport. The paper represents a thorough look into the many policy suggestions the collaborative forum agreed on, with the hope of further partnership to work with the Hong Kong government on this issue.

OUR PARTNERS

CAN was one of the key partners and co-organisers of the ZEMC, alongside fellow members that included:



PUBLIC SUPPORT TO ZERO EMISSION

This in-depth white paper urgently called for strong and bold action from the Government, which would bring Hong Kong in line with global climate action efforts. Critically, this would help bring Hong Kong closer to achieving its carbon neutrality target by 2050, as well as help Hong Kong keep up with neighbouring world-class cities which have already stepped up action, such as Shenzhen.

The need for action is further bolstered by widespread public support in our city, with a late 2021 [survey](#) commissioned by CAN showing that 72% of Hong

Kong respondents supported switching all franchised buses to zero-emission vehicles. The same poll also found that nearly half were in favour of at least 50% of the bus fleet being zero-emission by 2030.

CAN and other members also urged for the swift implementation of measures and policy recommendations, with elevated oil prices and the escalating impacts of the climate crisis further intensifying the need for Hong Kong to quickly step up its role as a leading international city in bringing about a healthy and zero-carbon future.

GOVERNMENT RESPONSE

The formation and activities of the ZEMC, including the publishing of the policy recommendation white paper, led to major steps forward in the road to an emissions-free transportation system in Hong Kong.

Notably, Hong Kong's Chief Executive John Lee announced several measures during his policy address in October 2022. These measures included the introduction of around 700 electric buses and 3,000 electric taxis by the end of 2027, as well as plans to publish a full roadmap aimed at promoting electric

public transport and commercial vehicles. This roadmap will also form the basis of Hong Kong's long-term strategy to apply hydrogen energy in the city's road transport system by 2025.

In addition, the ZEMC and its policy recommendations led to the government's push to expedite the transformation to a low-carbon transport sector through trialling new generation electric taxis, as well as hydrogen fuel cell electric double-deckers and heavy vehicles in 2023.

The full white paper can be downloaded [here](#).







PILLAR 2

EMPOWERMENT

Neighbourhood Exhibitions & Community Knowledge Sharing

ADVOCACY 

EMPOWERMENT 

KNOWLEDGE 

2.1 Clean Air Neighbourhood Carry On! Project Finale Exhibition

OVERVIEW

To mark the end of the first phase of our two-year neighbourhood community education project, Clean Air Neighbourhood Carry On!, CAN held a Town Hall exhibition in Tuen Mun in October 2022. Under our Empowerment pillar, this project explored district-specific problems and identified opportunities for community-level solutions.





PROGRAMME OBJECTIVES

The impetus of the programme was to address the information gap when it comes to air pollution exposure hotspots around neighbourhoods in Hong Kong. Using engaging, effective and scalable public education programmes, CAN sought to improve understanding and knowledge of air pollution and mitigation methods within schools, families and the wider community. This came hand-in-hand with practical efforts to improve schools' air pollution monitoring and mitigation capacities, with the goal of eventually building up the neighbourhood and community's ability to tackle air pollution effectively.

PARTICIPATING SCHOOLS

The event saw all seven participating schools showcase their learning outcomes and key challenges identified over the course of the project in a joint exhibition. These schools included the CCC Tam Lee Lai Fun Memorial Secondary School, Baptist Wing Lung Secondary School, Lui Cheung Kwong Lutheran College, TWGHs Mr. and Mrs. Kwong Sik Kwan College, YOT Chan Wong Suk Fong Memorial Secondary School, HHCKLA Buddhist Leung Chik Wai College and TWGHs Yau Tze Tin Memorial College.

IMPACT & OUTCOME

1/ Nitrogen Dioxide (NO2) Level Monitoring

One of the key outcomes of Clean Air Neighbourhood Carry On! was the installation of 77 nitrogen dioxide (NO2) tubes within an initial 3-week monitoring period. This provided data showing high concentration levels of NO2 pollution around two bus stops on Tuen Mun road, raising awareness of hotspots that members of the community may live in close proximity to, or frequent on a regular basis.





IMPACT & OUTCOME

2/ Student Participation in Community

Another key impact that this project had was within the social space. Over the course of the programme, students were engaged in sharing their innovative ideas and participating in community-level actions to combat air pollution. Online workshops, interactive games and group discussions were held to ignite students' awareness and attention on the issue. After our neighbourhood programme, multiple students joined the Clean Air Students Council, as a result of their increased interest in environmental and health issues.



FUTURE INITIATIVES

In addition to presenting these main takeaways, the joint exhibition also laid out possible ways forward for future clean air actions in the neighbourhood through panel discussions among educators, professionals and environmental advocates.

With the first phase of the Clean Air Neighborhood project wrapped up, CAN is now paving the way for a new chapter to begin, which will have a dual focus on greater collaboration between schools and the wider community.

Moving forward, CAN has solid plans to continue curating relatable and educational activities to engage participation and action from the public, both in the Tuen Mun community and other major districts across Hong Kong. We aim to broaden our impact through these neighbourhood programmes and continue to enhance the level of awareness and knowledge about the issue of air quality in all sections of society.



2.2 Clean Air Schools for Hong Kong: Interim Review

OVERVIEW

In March 2022, CAN held an interim review to reflect on our flagship project, Clean Air Schools for Hong Kong. The review was held after reaching the one-year milestone since the launch of the project, which first began in early 2022 in collaboration with the Institute for the Environment of the Hong Kong University of Science and Technology (HKUST-IENV).



PROJECT OBJECTIVES

As part of CAN's Empowerment pillar, the key goal of the project is to uncover the environmental and health risks that students and educators are exposed to on a daily basis.



This is particularly pertinent for schools in Hong Kong, as 25% of primary schools in the city are located within 150-metres of highways with busy traffic. With Sham Shui Po and Tuen Mun pinned as districts with the highest concentrations of PM (particulate matter) and NO₂ (nitrogen dioxide) in a population weighted average according to an HKUST-HKU study, CAN's project

partnered with schools within these two districts to set up air quality data collection infrastructure.

Our project also seeks to provide schools with practical and effective measures to mitigate air pollution risks, with the ultimate goal of aiding informed, location-specific and real-time decisions.

REVIEW SUMMARY



● Identification of Pollution Trend

During a stakeholder meeting to review the Clean Air Schools for Hong Kong programme, the project team identified the main trends and potential causes of various air pollutants. The analysis, based on data collected over six months, showed that indoor air pollution could exceed the threshold that affects students' decision-making performance and respiratory

functioning. The primary pollutant of relevance was carbon dioxide (CO₂). Other points of discussion included the correlation between outdoor and indoor air pollution levels, as well as general observable patterns of typical pollution spikes.



● Action Plan for Clean Air

The team additionally provided an update on the development of future project phases, and emphasised the integral need for support from schools to conduct upcoming trials of pollution mitigation measures. Another element for further growth of the project was a range of professionally designed environmental educational activities, which would support the development of STEM or STEAM curricula within schools. This would serve as resourceful

tools for teachers to educate, discuss and promote the issue of air pollution within classrooms.

Soon after the interim review, the project team launched the 'Clean Air Schools Action Framework' in April 2023. This framework represents the first-of-its-kind within Hong Kong, enabling educators to formulate their own Clean Air Action Plan upon completing a simple 15-minute questionnaire.



PILLAR 3

KNOWLEDGE

Raising Awareness About Air Pollution

ADVOCACY

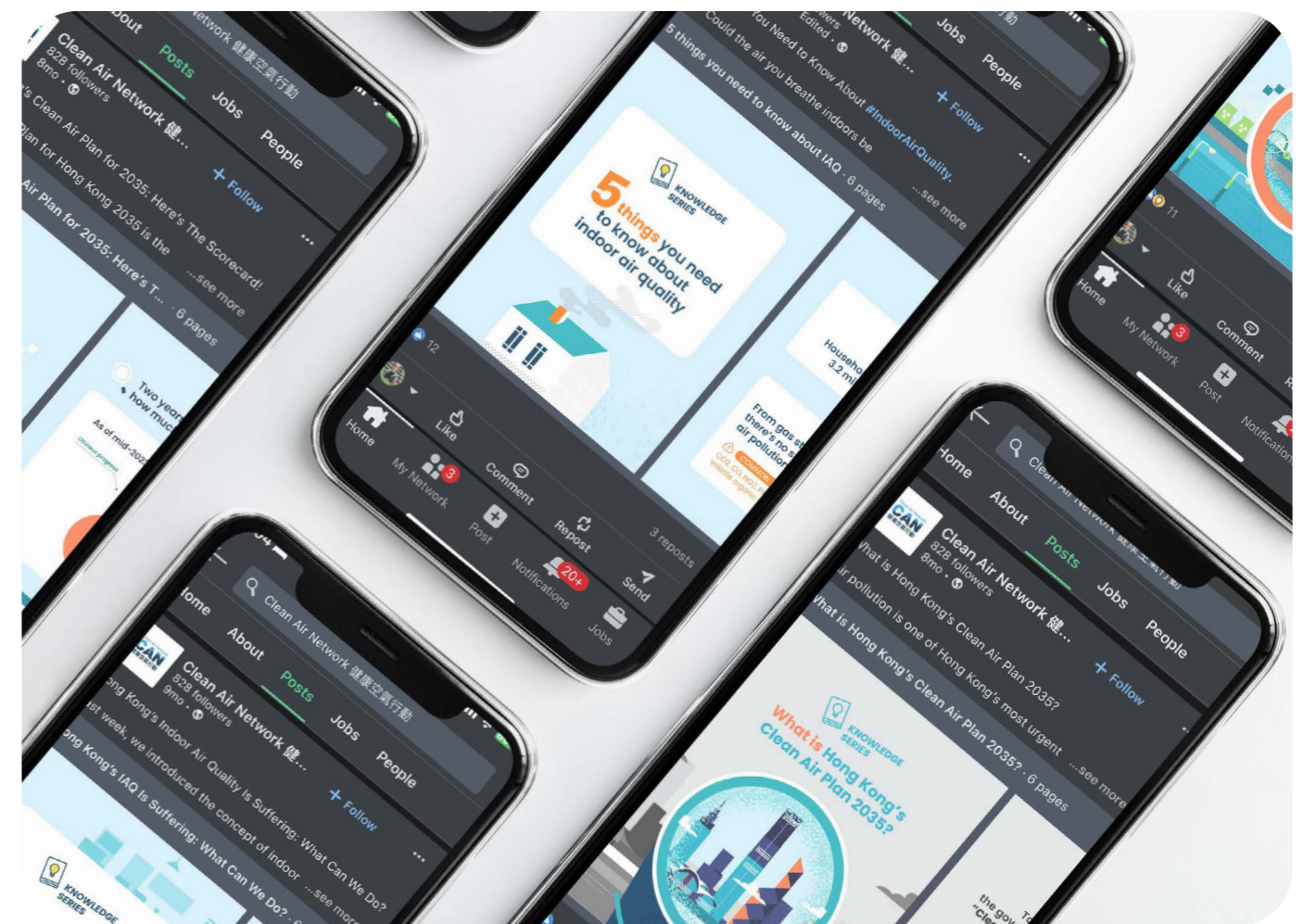
EMPOWERMENT

KNOWLEDGE

3.1 CAN Knowledge Series

OVERVIEW

Within our Knowledge pillar of action, CAN launched a series of social media posts between April and June 2023. Over the course of these months, CAN aspired to deliver crucial information about air pollution to the public in an easy-to-understand and shareable format.





ONLINE KNOWLEDGE SHARING

Promoted through our LinkedIn platform, each regular post tackled one major issue related to air pollution, tied together by various key themes such as the WHO Global Air Quality Guidelines and the Climate Crisis. In addition to disseminating valuable information and key facts and figures about each topic, the series aimed to encourage broader reflection and discussion about action on air pollution in Hong Kong.

In the final instalment of the series, CAN reviewed Hong Kong's Clean Air Plan 2035. First revealing the facts behind the city's enormous air pollution crisis and the key areas of action the Clean Air Plan involves, CAN provided Hong Kong with a traffic-light 'scorecard' to indicate how much progress the government has made on its roadmap. The Knowledge Series was closed out with a campaign-style recommendation of two major actions that would drastically improve Hong Kong's pathway to cleaner air.

By highlighting the need for district-based actions and a greater emphasis on indoor air quality, CAN hopes to have improved the public's understanding of and awareness about urgent and effective changes in the fight against air pollution in Hong Kong.

Follow us on LinkedIn to learn more:



Clean Air Network
健康空氣行動

[Click here to visit](#)



ADVOCACY 

EMPOWERMENT 

KNOWLEDGE 

3.2 Reimagining Our Air 'On Air'

OVERVIEW

In November 2022, CAN launched 'On Air 2022' together with Oil Street Art Space. It marked the first-ever art project to take place in Hong Kong since the Covid-19 pandemic, and sought to reorient the public's consciousness to the air we breathe, especially on indoor air quality issue.



Around 10,000 visitors participated in the exhibition and side events during the 4 weeks event, including representatives of various sectors (art, design, business, environment, social welfare, education, architecture, etc) and institutions.

As our first public-facing exhibition since the pandemic, CAN set its sights to remind the community about not only the environmental aspect of air pollution, but also the wide-ranging negative health risks associated with exposure to poor air quality—especially in a highly compact and modern environment like Hong Kong.



PROJECT HIGHLIGHT

● *Creativity X Clean Air*

One of the unique parts of this public engagement project was the exploration of creativity and collaboration in the fight for cleaner air. With contributions from a number of collaborators co-curated with local artiste Yip Kai Chun, the art pieces brought new perspectives to conversations about environmental, urban and well-being issues.



● *Pollution-free Experience*

Perhaps the greatest highlight of On Air was the artwork installation Dusts-free-Chambers, presented by Austria-based artist and architect Adam Hudec. Dusts-free-Chambers engaged visitors with an unusual sensual experience in a pollution-free indoor environment, designed to spark curiosity about the causes of air pollution and the dire consequences of inaction.



● *Workshops, panel talks & film screening*

Aside from the installation, the project involved a series of workshops, panel talks and film screenings, which further sparked meaningful discussions and clean air actions across the community. Workshops ranged from DIY air sensor and terrarium-building activities, while the symposium panels centred on topics from enhancing local air pollution education to exploring the link between urban design and air quality.

IMPACT & OUTCOME

The exhibition was presented at a time when the link between air pollution and health was top of mind among the public. In the midst of the pandemic and increasing awareness about the link between air pollution and the higher risk of airborne transmission of respiratory and viral diseases, cities around the world began focusing on building up resilience against future environmental and public health crises.



MORE WORKS

2022

Annual Air Quality Review

OVERVIEW

Every year, CAN analyses air quality data from the Environmental Protection Department's monitoring stations every year to understand local pollution trends. We published our 2022 annual view in February 2023.

Overall, we observed that the annual average concentrations of three major pollutants, including nitrogen dioxide (NO₂), PM₁₀ and PM_{2.5}, had all decreased. However, these levels still exceed the safety standards recommended by the World Health Organization.





KEY FINDINGS

● *Exceedance in Roadside No2 Concentration*

In particular, roadside NO₂ concentration was over the recommended safety limit by a staggering 540%. Unsafe pollution levels in 2022 had caused an estimated 3,516 premature deaths and an economic loss of HK\$41.9 billion. It also amounted to an additional 4.76 million doctor visits and over 218,000 hospital bed days, which spotlights the enormous health and economic consequences of air pollution.

● *Rise in Ozone Concentration Levels*

Another key finding was the continued rise in ozone (O₃) concentration levels, primarily due to regional emissions. In 2022, the annual average concentration charted by general monitoring stations was the second highest on record, increasing by 4% year-on-year. Even more concerning was the record levels at roadside monitoring stations, which rose 6% to reach a historic high—a reflection of the insufficient nature of current policy measures aimed at tackling ozone pollution.

POLICY RECOMMENDATIONS

Given the multifaceted costs of continued inaction on air pollution in Hong Kong, CAN laid out clear goals and policy recommendations for the Government.

These include:

- The need for bold and aggressive measures, such as expanding green transport, implementing electronic road pricing,
- Extension of low emission zones, pedestrian and bicycle friendly policies
- The tightening marine vessel emission standards
- Adoption of clean energy

All these measures will work in tandem to bring Hong Kong's air quality in line with international cities by 2035, as well as aid in Hong Kong's carbon neutrality goal by 2050.

CAN also recommended a further tightening of Hong Kong's Air Quality Objectives (AQOs), driven by a clear overall aim to meet the recommended Air Quality Guidelines (AQGs) outlined by the World Health Organisation as soon as possible. This is necessary in

order to safeguard public health and safety, particularly as Hong Kong seeks to thrive in a post-pandemic world.

Finally, given the worsening situation regarding ozone pollution, CAN advocates for an immediate plan to reduce ozone levels. Tackling ozone pollution will require the adoption of both local and regional measures, as well as collaboration between different sectors of the economy.

ACKNOWLEDGEMENT

Clean Air Network would like to express our deepest appreciation to the following individuals and groups for their support. Our work would not be possible without all the collaboration, partnership and valuable contributions we have received. We look forward to continue strengthening our mission and impact to make

Zero Emissions Mobility Consortium

- Citybus
- Civic Exchange
- CLP Power Hong Kong
- Kowloon Motor Bus Company
- New Lantao Bus
- Power Asset Holdings
- The Hong Kong Polytechnic University
- The Hong Kong University of Science and Technology
- Towngas

Clean Air Neighbourhood

- Above The Line
- Antelope Education Limited
- Baak6zou6
- Baptist Wing Lung Secondary School
- Blue Sky Energy Technology
- CCC Tam Lee Lai Fun Memorial Secondary School
- CCC Tam Lee Lai Fun Memorial Secondary School Project on Generation Connect through Fitness and Easy Sports
- Classmate Magazine
- Education Media
- HHCKLA Buddhist Leung Chik Wai College
- HKUST Institute for the Environment
- Hong Kong Teachers' Association Lee Heng Kwei Secondary School
- Lui Cheung Kwong Lutheran College
- Make a Difference
- The Hong Kong Institute of Planners
- Tuen Mun District Council Environmental Hygiene, Climate Change and Sustainable Development Committee
- Tuenmunality
- TWGHs Mr. and Mrs. Kwong Sik Kwan College
- TWGHs Yau Tze Tin Memorial College
- Walk in Hong Kong
- YOT Chan Wong Suk Fong Memorial Secondary School

Clean Air Schools for Hong Kong

- AD & FD of Pok Oi Hospital Mrs. Cheng Yam On Millennium School
- Chan's Creative School
- HKUST Institute for the Environment
- Lui Cheung Kwong Lutheran Primary School
- SKH St. Andrew's Primary School
- Society of Boys' Centres Chak Yan Centre School
- St. Francis of Assisi's English Primary School
- The Hong Kong Eng Clansman Association Wu Si Chong Memorial School
- Yan Chai Hospital Law Chan Chor Si Primary School

ON AIR

- Artist Adam Hudec
- Curator Yip Kai Chun
- Dusts Institute
- European Chamber of Commerce in Hong Kong
- G.T. (Ellen Yeung) College
- Hong Kong Teachers' Association Lee Heng Kwei Secondary School
- Leisure and Cultural Services Department
- Oil Street Art Space
- Street Reset
- THINGSIDID

Other supporters in "ON AIR"

- ADM Capital Foundation
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- Austrian Consulate General Hong Kong
- Austrian Trade Commission for Hong Kong and Macau
- Blue Sky Energy Technology
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