

2025

空氣質素

指標檢討

REVIEW OF THE AIR QUALITY OBJECTIVES

公眾諮詢 PUBLIC CONSULTATION



公眾諮詢論壇

Public Consultation Forum

13.8.2019

程序 PROGRAMME

| | |
|---------------|--|
| 19:00 – 19:10 | 開幕辭 Opening Remarks |
| 19:10 – 19:30 | 簡介空氣質素指標的檢討 Briefing on the Air Quality Objectives Review |
| 19:30 – 21:00 | 意見分享 Views sharing |

檢討方向 APPROACH FOR THE REVIEW

通過實施各種減排措施和訂定中期目標，**逐步改善空氣質素**，並以世界衛生組織《空氣質素指引》(世衛《指引》)所訂的最終指標，作為本港的最終目標。

Progressively improve our air quality through implementing various emission reduction measures and setting of interim targets, with a view to meeting the ultimate targets of the World Health Organization Air Quality Guidelines (WHO AQGs) as our goal.

目前，**未有任何國家**全面採納世衛《指引》的最終指標為其法定空氣質素標準。
At present, **no country** has fully adopted the ultimate targets of the WHO AQGs as its statutory air quality standards.

香港現行的空氣質素指標**已有六項**採納世衛《指引》的最終指標。政府的目標是在**2020年**，本港空氣質素大致達致現行的指標水平。

Six of Hong Kong's prevailing Air Quality Objectives (AQOs) are already set at ultimate targets of WHO AQGs. The Government's target is to broadly meet AQOs by **2020**.

檢討空氣質素指標是按法例規定及持續地進行。今次檢討是評估在**2025年**空氣質素的改善情況和收緊指標的空間。

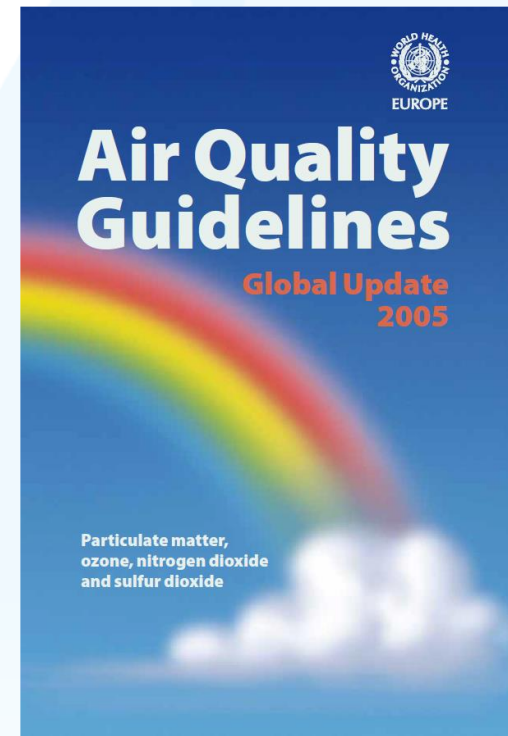
The review of the AQOs is a statutory and an on-going process. The current review assessed air quality improvements in **2025** and the scope for tightening of the AQOs.

下一次檢討會在未來數年進行，以評估**2030年**進一步收緊空氣質素指標的空間。
The **next review** will be conducted in the coming few years to assess the scope for further tightening of the AQOs in **2030**.

背景 BACKGROUND

世界衛生組織《空氣質素指引》(世衛《指引》)
World Health Organization (WHO) Air Quality
Guidelines (AQGs) :

- 訂明一套中期目標和最終指標
provides a set of **Interim Targets (ITs)** and **ultimate targets**
- 鼓勵各地政府按當地情況，透過採用中期目標**逐步**
達到世衛《指引》所訂的最終指標
encourages individual governments to consider their own
local circumstances and adopt interim targets
progressively with a view to achieve the ultimate targets
of WHO AQGs



香港空氣質素指標 與 世衛《指引》的中期及最終目標

HK AQO VS WHO AQG AND IT

| 污染物 Pollutant | 平均時間 Averaging Time | 世衛《指引》WHO AQGs (微克/立方米 $\mu\text{g}/\text{m}^3$) | | | | 現行香港空氣質素 指標容許超標次數 No. of Allowable Exceedance in AQOs |
|--|------------------------|--|------|------|----------------------------|---|
| | | IT-1 | IT-2 | IT-3 | 最終指標 Ultimate Target | |
| 可吸入 懸浮粒子 (RSP / PM ₁₀) | 1-yr 年 | 70 | 50 | 30 | 20 | 不適用 N/A |
| | 24-hr 小時 | 150 | 100 | 75 | 50 | 9 |
| 微細 懸浮粒子 (FSP / PM _{2.5}) | 1-yr 年 | 35 | 25 | 15 | 10 | 不適用 N/A |
| | 24-hr 小時 | 75 | 50 | 37.5 | 25 | 9 |
| 二氧化氮 (NO ₂) | 1-yr 年 | - | - | - | 40 | 不適用 N/A |
| | 1-hr 小時 | - | - | - | 200 | 18 |
| 二氧化硫 (SO ₂) | 10-min 分鐘 | - | - | - | 500 | 3 |
| | 24-hr 小時 | 125 | 50 | - | 20 | 3 |
| 一氧化碳 (CO) | 1-hr 小時 | - | - | - | 30,000 | 0 |
| | 8-hr 小時 | - | - | - | 10,000 | 0 |
| 臭氧 (O ₃) | 8-hr 小時 | 160 | - | - | 100 | 9 |
| 鉛 (Pb) | 1-yr 年 | - | - | - | 0.5 | 不適用 N/A |

綠色方格為香港的現行空氣質素指標 Prevailing HK AQOs are indicated in green cells

IT – 中期目標 Interim Target

空氣質素指標的作用

FUNCTIONS OF THE AQOS



作為制定短期空氣質素改善計劃的中期目標

Interim goal for developing short-term air quality improvement plans



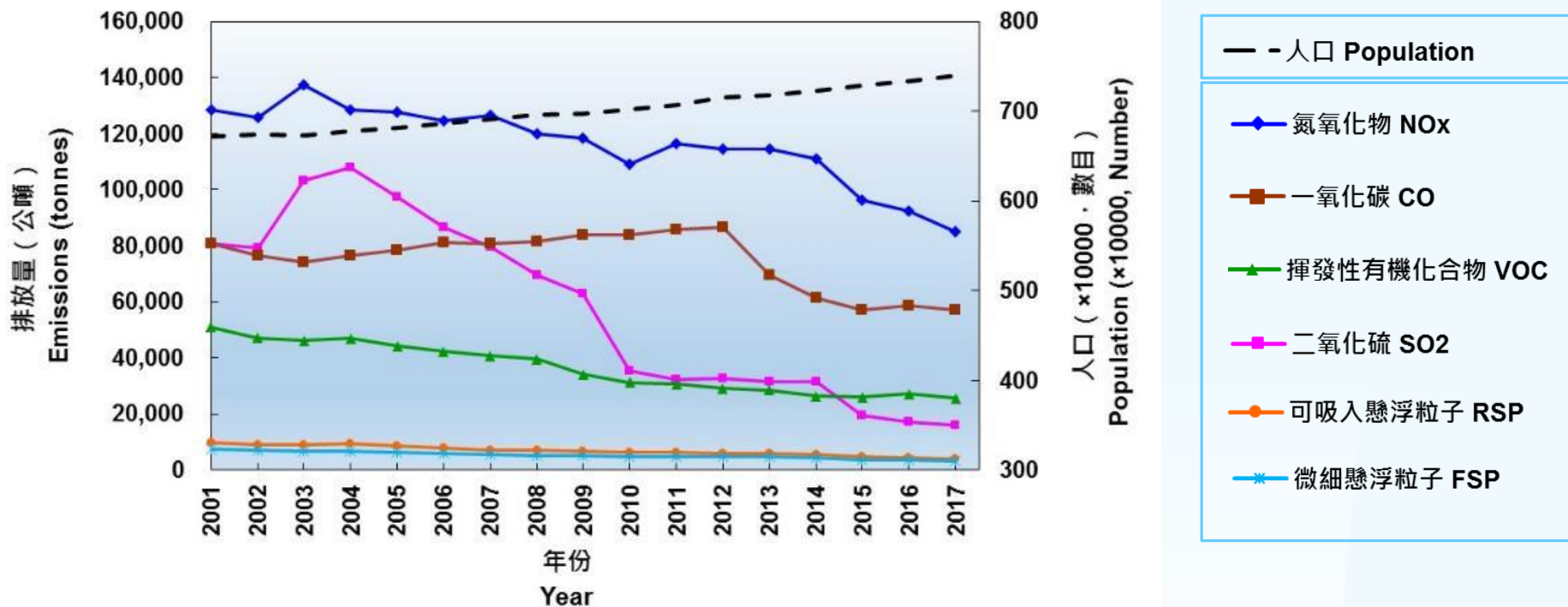
作為環境影響評估和指明工序(如發電廠)牌照的準則

Benchmark for Environmental Impact Assessment (EIA) process and license application of Specified Processes (e.g. power plants)

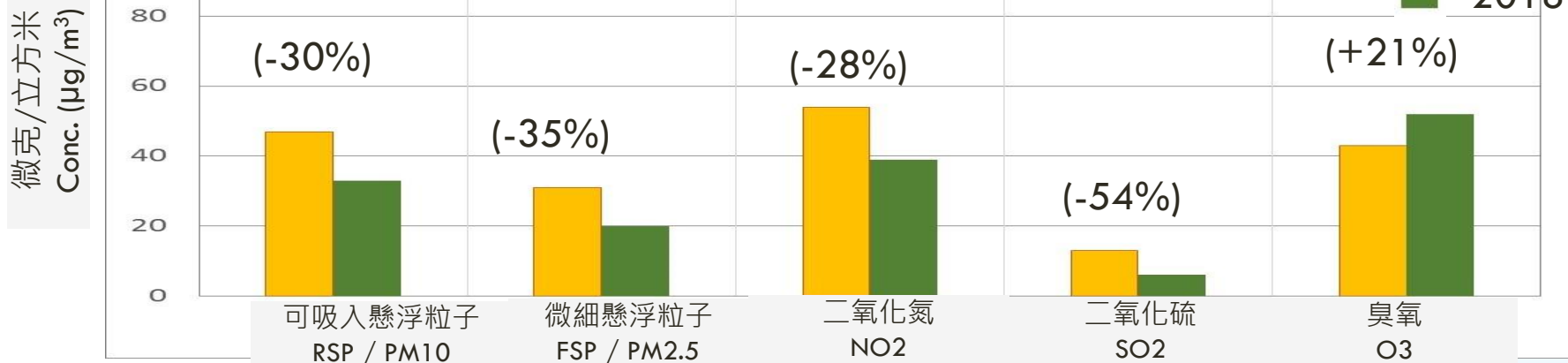
*因此，探索切實可行的新空氣質素改善措施並考慮其減排潛力，對評估有否空間收緊指標至關重要。

As such, it is of paramount importance to identify new practicable air quality improvement measures and consider their emission reduction potentials in assessing the scope of AQOs tightening.

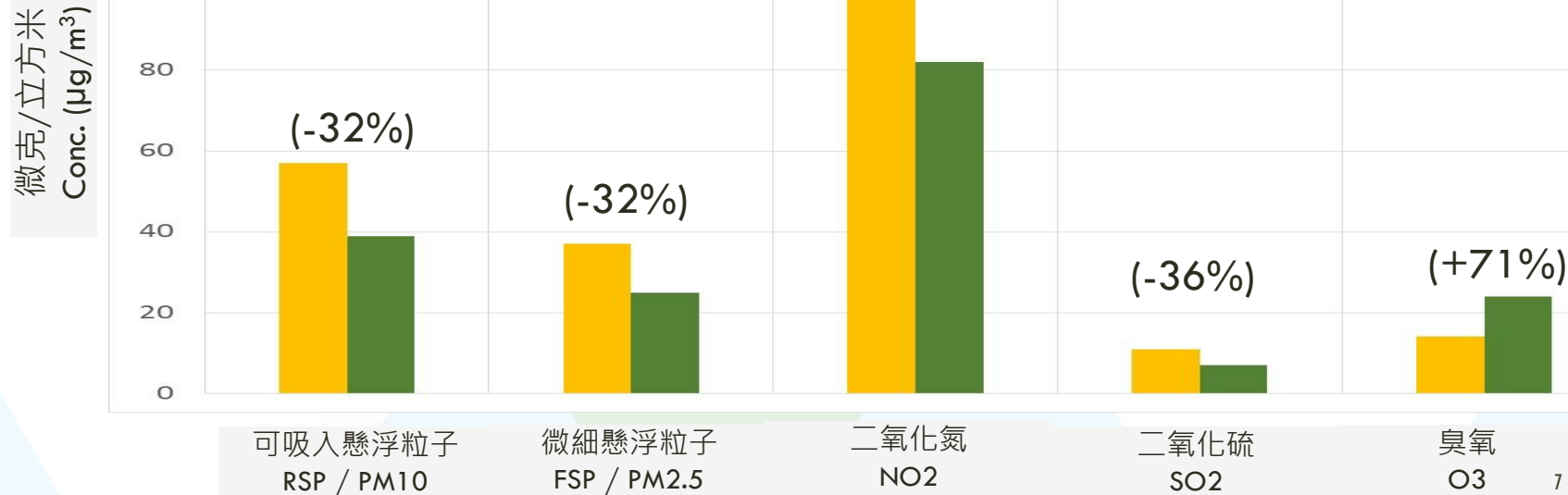
2001-2017 排放量及人口變化趨勢 TRENDS OF EMISSIONS & POPULATION



一般空氣質素趨勢 AMBIENT AIR QUALITY TREND (2013 – 2018)



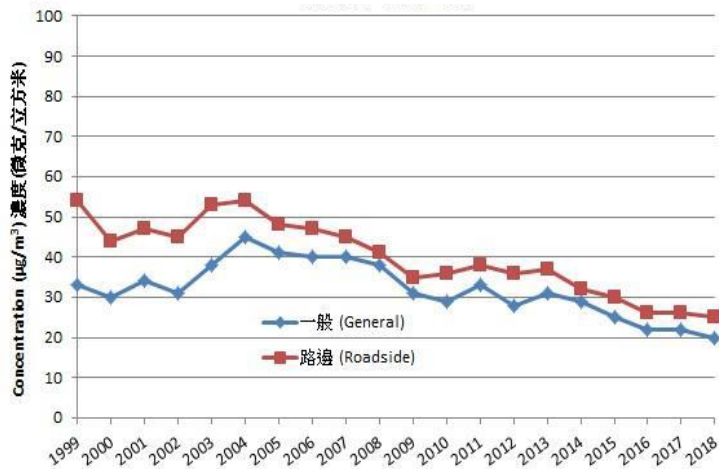
路邊空氣質素趨勢 ROADSIDE AIR QUALITY TREND (2013 – 2018)



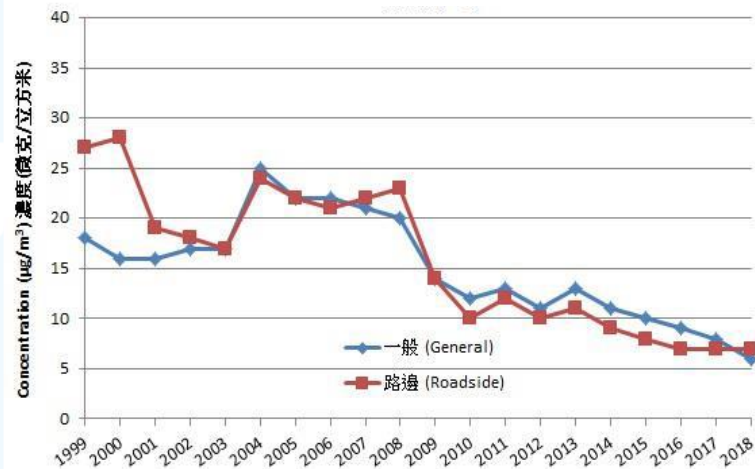
空氣質素趨勢

AIR QUALITY TRENDS

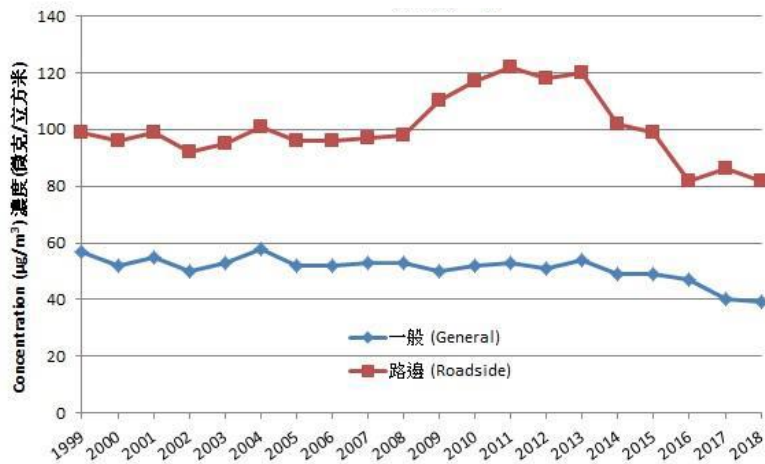
微細懸浮粒子 PM_{2.5}



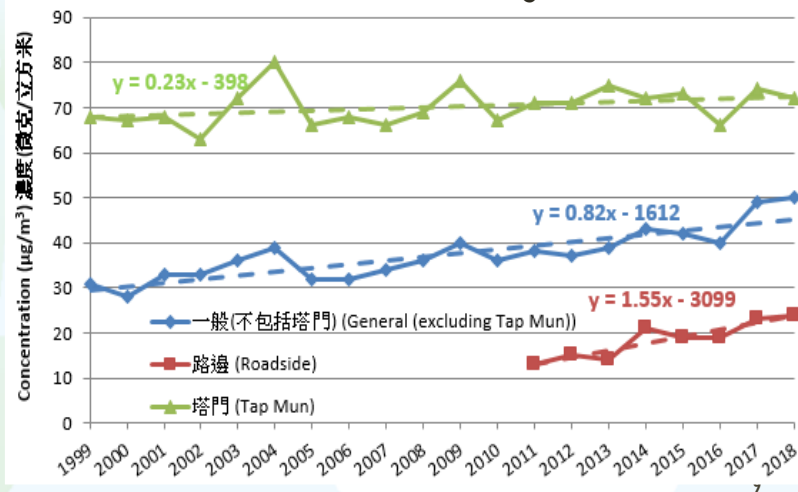
二氧化硫 SO₂



二氧化氮 NO₂

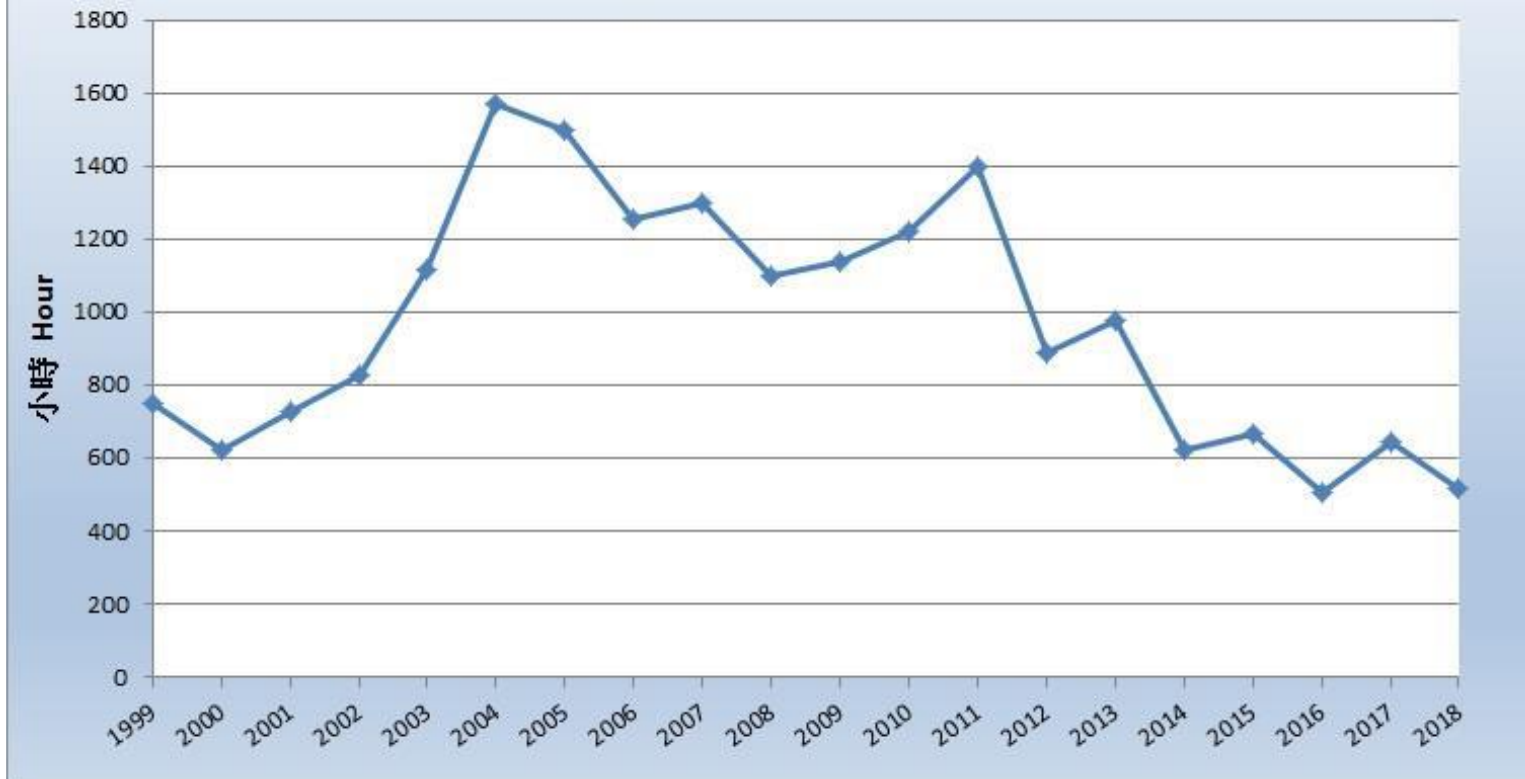


臭氧 O₃



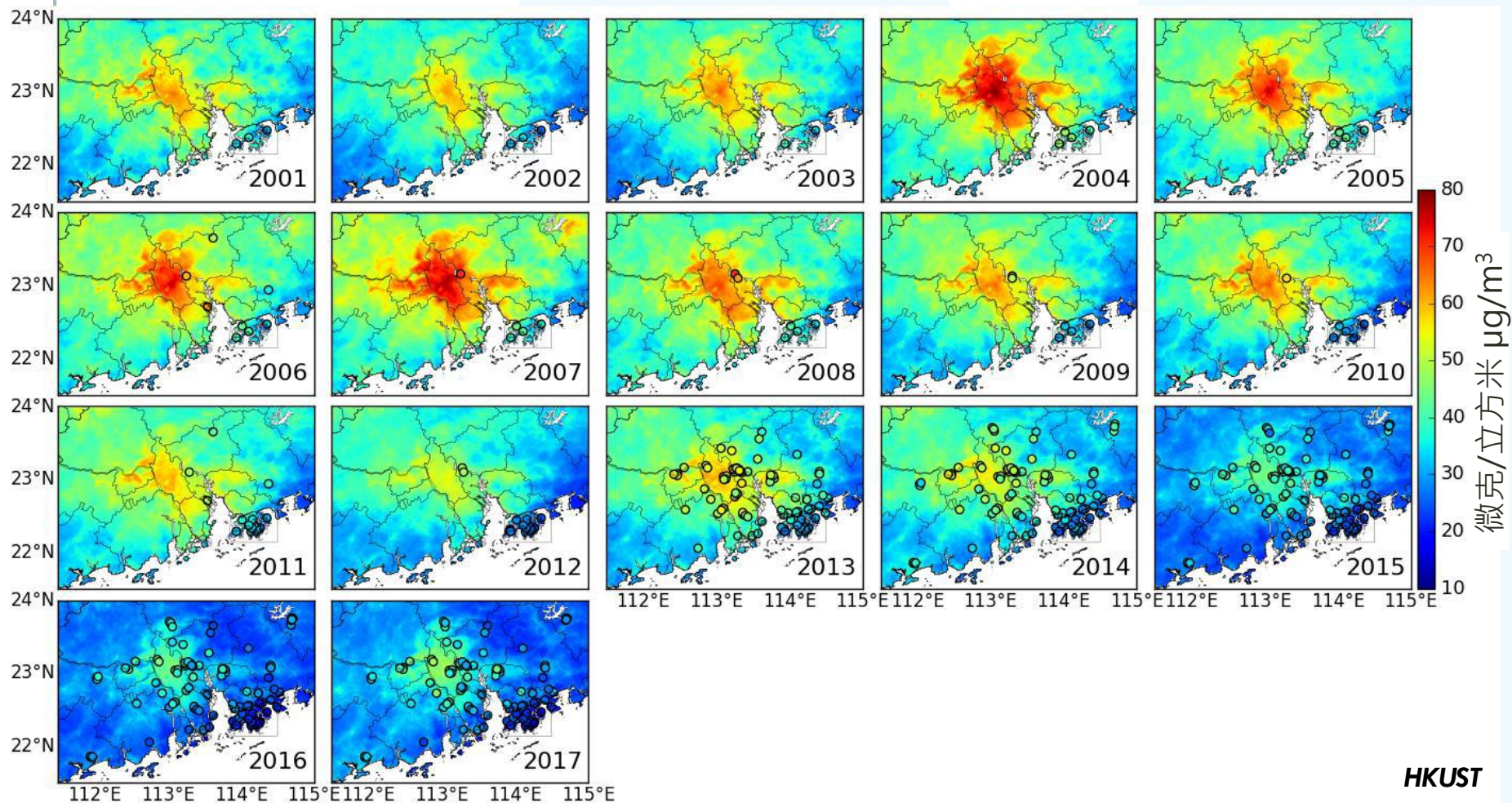
能見度改善 IMPROVEMENT IN VISIBILITY

香港天文台錄得的低能見度時數 (1999 - 2018)
Number of hours of Reduced Visibility observed at the
Hong Kong Observatory (1999 - 2018)



衛星分析 PM_{2.5} 濃度

SATELLITE IMAGES OF PM_{2.5} CONCENTRATIONS



檢討空氣質素指標的進程

THE AQOS REVIEW PROCESS

- 現行空氣質素指標於2014年1月1日**生效**

2014

- Prevailing AQOs **took effect** on 1 January 2014

- 向環境諮詢委員會(**環諮會**)和立法會環境事務委員會(**環委會**)簡介檢討的**工作計劃**
- 開展檢討，成立**工作小組**

2016

- Briefed ACE and LegCo EA Panel* on **work plan**
- Started the review and set up a **Working Group**

- 向**環諮會**和**環委會**匯報**檢討進度**
- 舉辦**公眾參與活動**

2017

- **Reported progress** to ACE and LegCo EA Panel
- Conducted a **public engagement** exercise

- **完成空氣質素指標檢討**

2018

- **Completed the AQOs Review**

- 向**環諮會**呈交**檢討報告**
- 向**環諮會**及**環委會**匯報檢討結果
- 進行為期3個月的**公眾諮詢**

2019

- Submitted a **review report** to ACE
- Reported review findings to ACE & LegCo EA Panel
- Launched a 3-month **public consultation**

- **修訂法例** (如需收緊指標)

- **Amend legislation** (If AQOs are to be tightened)

*ACE - Advisory Council on the Environment 12

*LegCo EA Panel - Panel on Environmental Affairs of the Legislative Council

空氣質素指標檢討工作小組

AQOS REVIEW WORKING GROUP

- 由60多名來自不同界別的委員組成，包括空氣科學、健康專業、環保團體、學者、商會、專業團體、業界代表，以及相關政府決策局及部門的代表

Some 60 external members from the fields of air science, health, green groups, academics, chambers of commerce, professional bodies and trade representatives, as well as representatives from relevant Government bureaux / departments



陸路運輸專家小組
Road Transportation Sub-group



海上運輸專家小組
Marine Transportation Sub-group



能源與發電專家小組
Energy & Power Generation Sub-group



空氣科學與健康專家小組
Air Science & Health Sub-group

探討改善空氣質素的**可能新措施**及其實施可行性

Explore **possible new measures** to improve air quality and assess their practicability of implementation

評估實施新措施後的**空氣質素改善情況**、**相關的健康和經濟效益**

Assess **air quality improvements** that might result from the new measures, and the **associated health & economic benefits**

顧問團隊
Consultant

協助進行評估工作
Assist in assessments

改善空氣質素的可能措施

POSSIBLE NEW AIR QUALITY IMPROVEMENT MEASURES



| 短期措施 Short-term | 中期措施 Medium-term | 長期措施 Long-term | 其他 Others |
|---|--|---|--|
| 數目 32 number | 7 | 13 | 28 |
| 政府正在推行或考慮，並預期能在2025年或以前見到成效的措施 On-going or already under consideration by the Government which are likely to produce results by 2025 or earlier | 於下一次檢討週期間（即2019至2023年）再作考慮的措施 May be ready for consideration in the next AQOs review period of 2019 – 2023 | 需要更詳細規劃或進一步研究以評估在下一個檢討週期以後實施的可行性的措施 Require detailed planning or further study to ascertain the practicability for implementation beyond the next review period | 措施經討論後確認為不可行、不具改善空氣質素的效益或不符合是次檢討範圍 Not practicable , short of air quality improvement benefits or not suitable to be considered under the current scope of the AQOs review |

建議的短期可能新措施例子

EXAMPLES OF POSSIBLE NEW SHORT-TERM MEASURES



遠洋船停泊時須使用含硫量上限不超過0.1%的船用柴油

Ocean-going vessels at berth to use marine diesel with sulphur content not exceeding 0.1%



鼓勵發展更多轉廢為能設施，減廢同時增加可再生能源

Encourage the development of more waste-to-energy facilities for waste reduction as well as increasing renewable energy



推動行人友善環境 (如興建有蓋步行徑、優化行人道網絡聯繫)，以鼓勵市民步行

Foster pedestrian-friendly environment (e.g. construction of covered walkways and enhancing the pedestrian connections) to encourage citizens to walk



檢視就未受法例規管的消費品 (如一般用途清潔劑、消毒劑) 訂立揮發性有機化合物(VOC)含量的限值的可行性。

Review feasibility to impose VOC limits on non-regulated consumer products (e.g., general purpose cleaners, disinfectants)

空氣質素評估 AIR QUALITY ASSESSMENT

考慮不同地區的污染物排放量

Consider the pollutant emissions in different regions



香港
Hong Kong



珠三角地區
PRD Region



珠三角以外的內地地區
Remaining areas in the
Mainland

氣象資料

Meteorological information



香港大氣污染物傳輸模型系統
“Pollutants in the Atmosphere and their
Transport over Hong Kong” Modelling System
(PATH-2016)



計算各類污染物的濃度

Simulate air pollutant concentrations



2025

估算2025年的香港空氣質素

Project the air quality in 2025

檢討的建議 REVIEW RECOMMENDATIONS

| 污染物 Pollutant | 平均時間 Averaging Time | 世衛《指引》WHO Air Quality Guidelines (微克/立方米 $\mu\text{g}/\text{m}^3$) | | | | 最終指標 * Ultimate Target | 現行香港空氣質素 指標容許超標次數 No. of Allowable Exceedance in AQOs |
|--|------------------------|--|------|------|--------|---------------------------|---|
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| | 24-hr 小時 | 150 | 100 | 75 | 50 | 9 | |
| 微細 懸浮粒子 (FSP / PM _{2.5}) | 1-yr 年 | 35 | 25 | 15 | 10 | 不適用 N/A | |
| | 24-hr 小時 | 75 | 50 | 37.5 | 25 | 9 → 35 | |
| 二氧化氮 (NO ₂) | 1-yr 年 | - | - | - | 40 | 不適用 N/A | |
| | 1-hr 小時 | - | - | - | 200 | 18 | |
| 二氧化硫 (SO ₂) | 10-min 分鐘 | - | - | - | 500 | 3 | |
| | 24-hr 小時 | 125 | 50 | - | 20 | 3 | |
| 一氧化碳 (CO) | 1-hr 小時 | - | - | - | 30,000 | 0 | |
| | 8-hr 小時 | - | - | - | 10,000 | 0 | |
| 臭氧 (O ₃) | 8-hr 小時 | 160 | - | - | 100 | 9 | |
| 鉛 (Pb) | 1-yr 年 | - | - | - | 0.5 | 不適用 N/A | |

綠色方格為香港的現行空氣質素指標 Prevailing HK AQOs are indicated in green cells

IT – 中期目標 Interim Target

橙色方格為建議收緊的空氣質素指標及容許超標次數

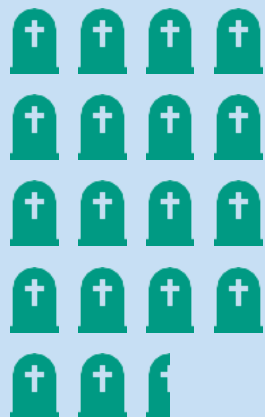
Proposed new AQOs and allowable no. of exceedances are indicated in orange cells

健康和經濟效益 HEALTH & ECONOMIC BENEFITS

與2015年相比，估算2025年的空氣質素改善可帶來的健康及經濟效益：

Compared with 2015, the projected health and economic benefits brought by the air quality improvement in 2025 are:

↓ ~1,850個早逝個案
Premature deaths

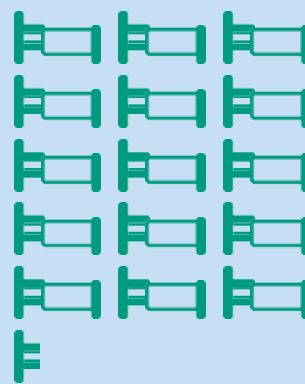


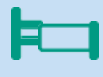
 =100個早逝個案
premature death



節省約330億港元
About HK\$ 33 billion saved

↓ ~1,530個住院病例
Hospital admission




 =100個住院病例
hospital admission



節省約2.46億港元
(包括減少約1.5億港元的生產力損失)
About HK\$ 246 million saved
(Including HK\$150 million saving in productivity loss)

↓ ~262,580個門診個案
Doctor consultation



 =10,000個門診個案
doctor consultation

*調整至2017年價值 Adjusted to 2017 value

未來路向

WAY FORWARD

- 考慮收到的公眾意見
Consider the views collected
- 就最終建議諮詢環諮會和環委會
Consult the ACE and LegCo EA Panel on final proposal
- 修訂《空氣污染管制條例》(如需收緊指標)
Legislative amendments (if decide to tighten the AQOs)

您的意見

SHARE YOUR VIEWS



問題一 Question 1

香港近年的空氣質素正在改善當中，你是否知悉空氣質素及能見度正在改善？

Hong Kong's air quality has been improving in recent years. Are you aware of the improvements in air quality and visibility?

問題二 Question 2

世衛《指引》建議各地政府持續探討改善空氣質素的新措施，同時平衡社會的發展逐步收緊空氣質素指標至世衛《指引》的最終指標，你認同這方向嗎？

The WHO AQGs recommend governments of various countries to continuously explore new air quality improvement measures and strike a balance on the development of the society, with a view to progressively tightening the air quality standards towards the WHO AQGs levels. Do you agree with this approach?

問題三 Question 3

你對今次檢討建議收緊微細懸浮粒子 (PM_{2.5}) 和二氧化硫 (SO₂) 的空氣質素指標有何意見？

What are your views on the proposed tightening of the AQOs for fine suspended particulates (PM_{2.5}) and sulphur dioxide (SO₂) as recommended in this review?

問題四 Question 4

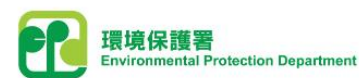
你認為進行下一次的空氣質素指標檢討時，有哪些工作需要注意和涵蓋？

In your opinions, what should be considered and included in the next review of the AQOs?

WWW.AQOREVIEW.HK

2025

空氣質素指標檢討 – 公眾諮詢



[主頁](#) [檢討方向](#) [檢討過程及結果](#) [文件及相關資訊](#) [提交意見](#) [公眾諮詢論壇](#) [網頁指南](#) [聯絡我們](#)

[繁體中文](#) [English](#) [A](#) [A](#) [A](#) [列印](#)

工作小組共分成四個專家小組，包括陸路運輸專家小組、海上運輸專家小組、能源與發電專家小組、以及空氣科學與健康專家小組。首三個專家小組負責在所屬範疇探討改善空氣質素的可能新措施及其實施的可行性。空氣科學與健康專家小組則專注評估實施可能新措施後的空氣質素改善情況、相關的健康效益，以致進一步收緊指標的可能範圍。

[請登入網頁](#)了解詳情。



公眾參與活動

環保署於2016年9月至10月期間就檢討期間對改善空氣質素的可能新措施進行公眾參與活動，並舉行兩場公眾參與論壇，收集公眾人士對改善空氣

The background features a light blue gradient with several large, semi-transparent white and light blue downward-pointing arrows of varying sizes. A thin vertical line is visible on the left side.

謝謝
THANK YOU

歡迎分享您的意見

We welcome your views

公眾諮詢論壇

Public Consultation Forum

13.8.2019