

Press conference: 21<sup>st</sup> February 2011

## The reasons why the government's proposed Air Quality Objectives won't protect health - a new analysis

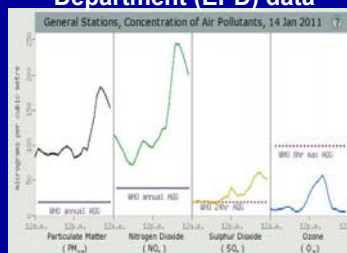
Dr. LAI Hak-Kan  
Dr. WONG Chit-Ming  
Prof. Sarah M McGhee  
Prof. LAM Tai-Hing  
Prof. Anthony J Hedley

School of Public Health  
The University of Hong Kong



## Hong Kong has good environmental and health data to estimate the disease burden and costs due to air pollution...

Environmental Protection  
Department (EPD) data



+

Health and mortality records



Health risk estimates

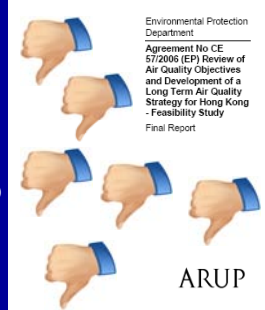


Community costs



## ...but lacks a valid methodological approach to set reliable air quality objectives (AQO)

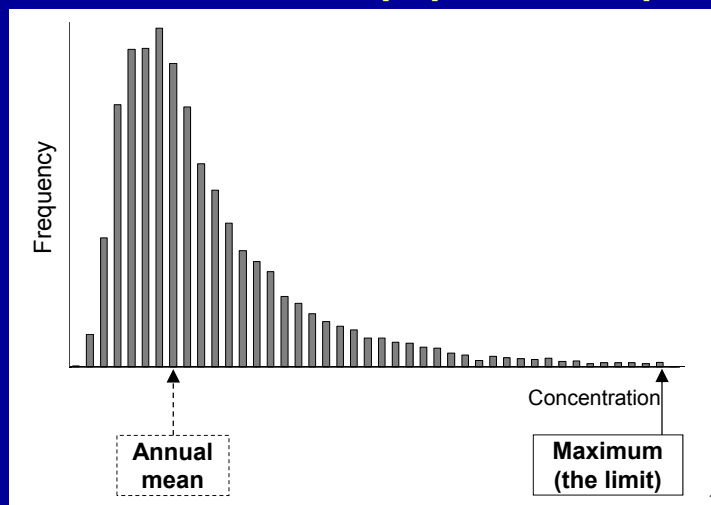
Hong Kong Government's consultant report for setting HKAQO



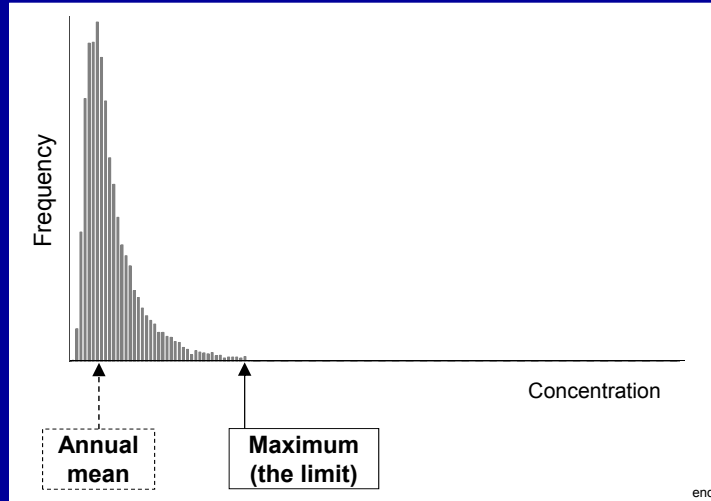
Hong Kong Government's proposed AQO

- Ignored population exposure
- Ignored roadside levels
- Excluded health impact assessment
- Rejected WHO benchmarks
- Set extremely lax AQO plus additional exceedances
- Only considers WHO guidelines as "long-term aspirational goals"

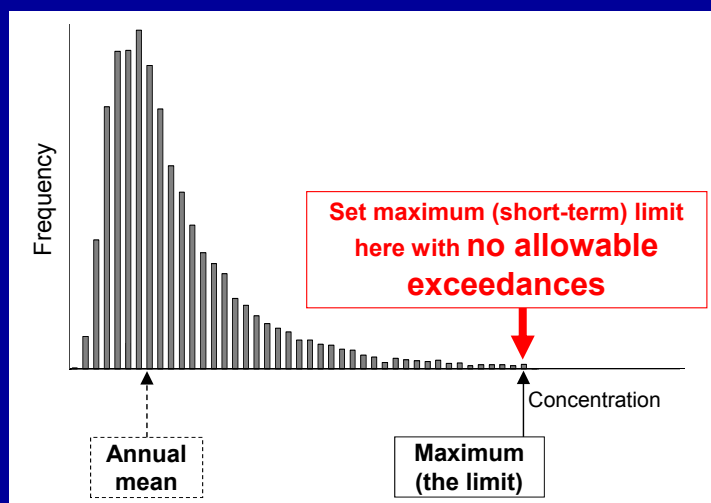
We find that there is a consistent relationship between maximum recorded pollutant levels, the annual mean and population exposure



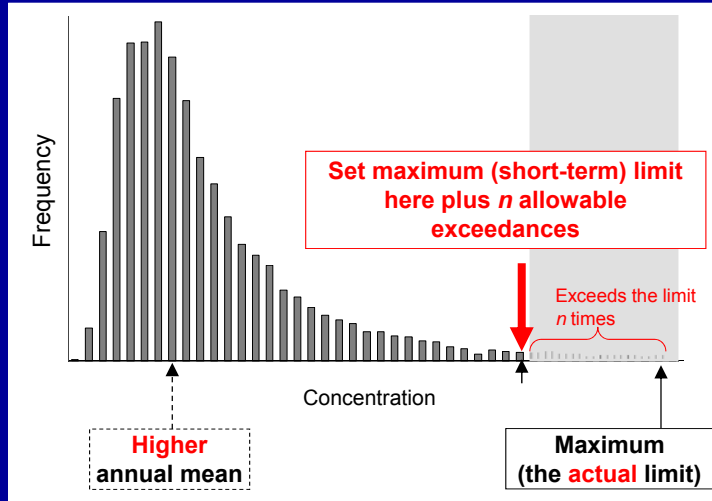
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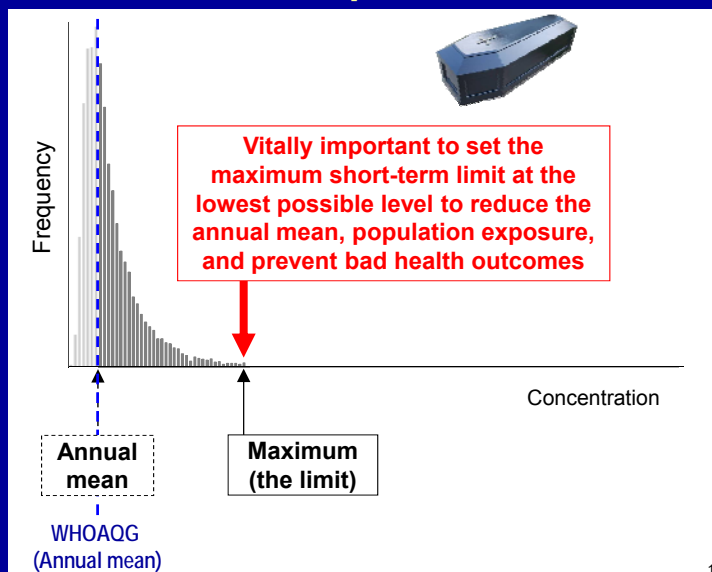
How can we use the pollutant curve to set AQO?



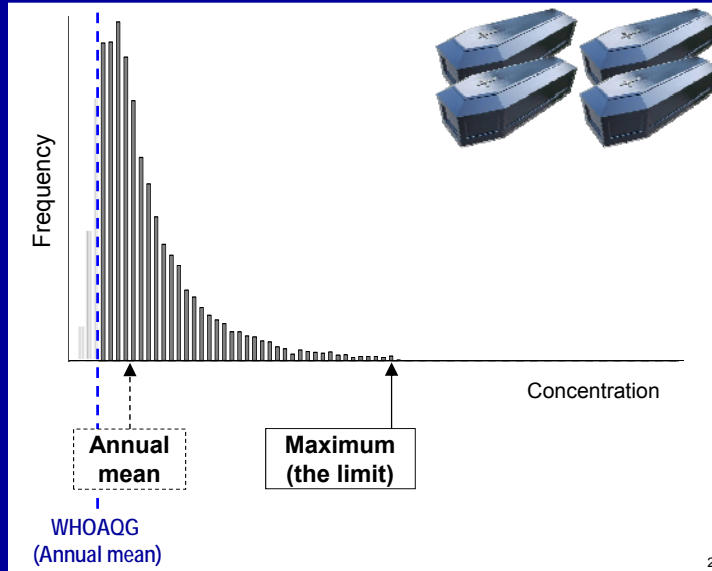
## How can we use the pollutant curve to set AQO?



## We show that it is important to use WHOAQG as the minimum safer benchmarks to protect the public

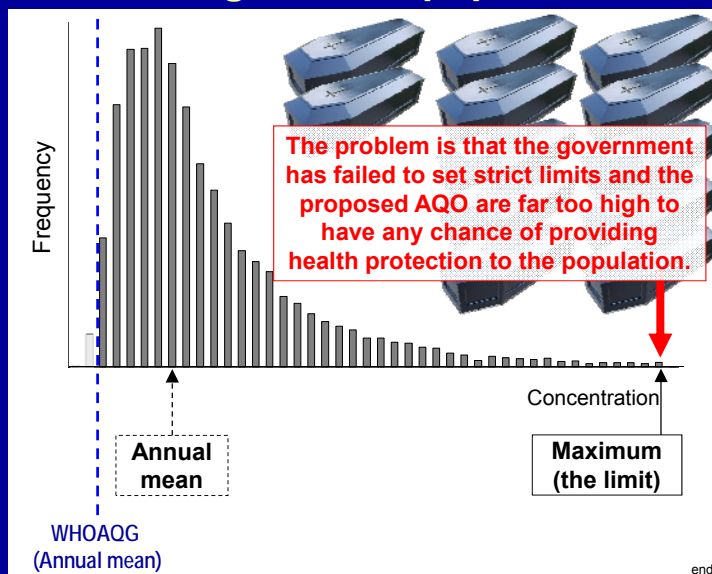


**We find that the consistent relationship between maximum, annual mean and population exposure can be used to assess health impacts**



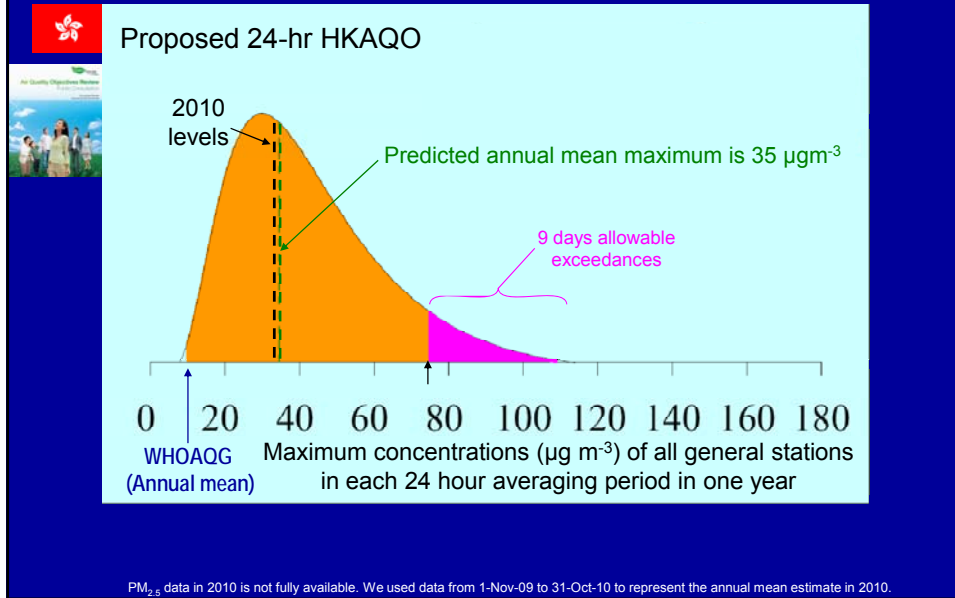
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**But the Hong Kong government uses very poor lax AQO limits that allow serious damages to the population**

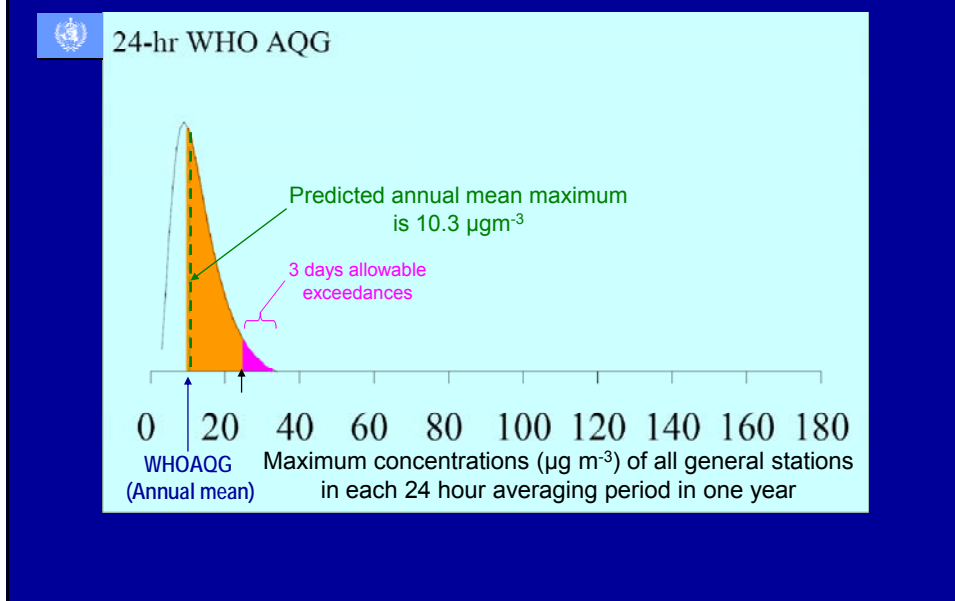


end

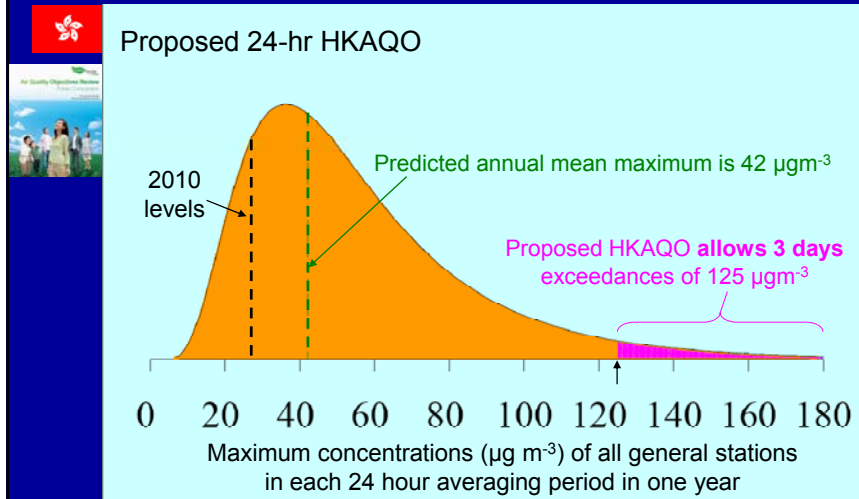
## Results: Fine particulate (PM<sub>2.5</sub>) at general stations



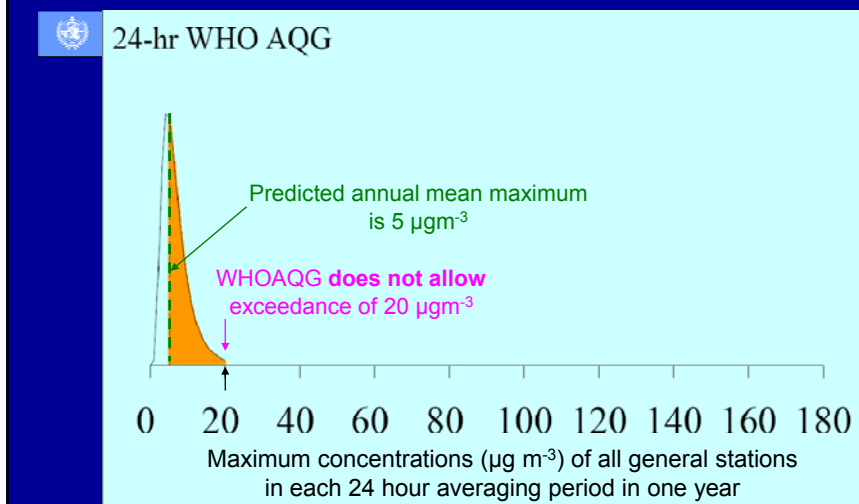
## Results: Fine particulate (PM<sub>2.5</sub>) at general stations



## Results: Sulphur dioxide (SO<sub>2</sub>) at general stations

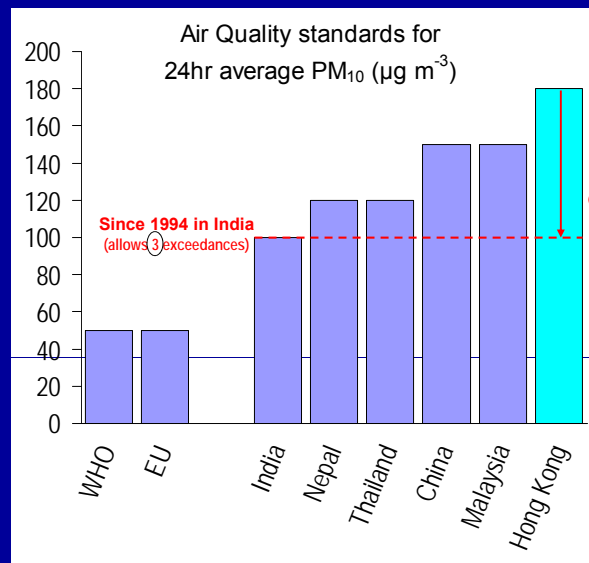


## Results: Sulphur dioxide (SO<sub>2</sub>) at general stations



# Can we have a budget for clean air ?

## Hong Kong Air Quality Objectives (HKAQO) are very outdated even in Southeast Asia region...

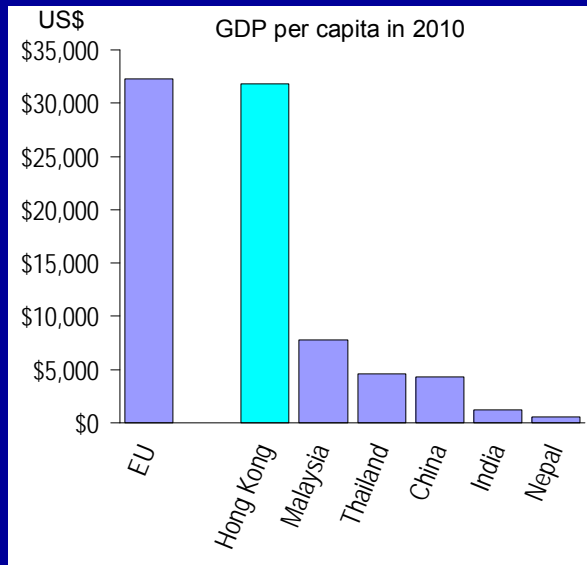


Government proposed HKAQO in 2011 as  $100\mu\text{g m}^{-3}$  (allows 9 exceedances)

Our government's proposed AQO is therefore still worse than the standard in India 15 years ago!!

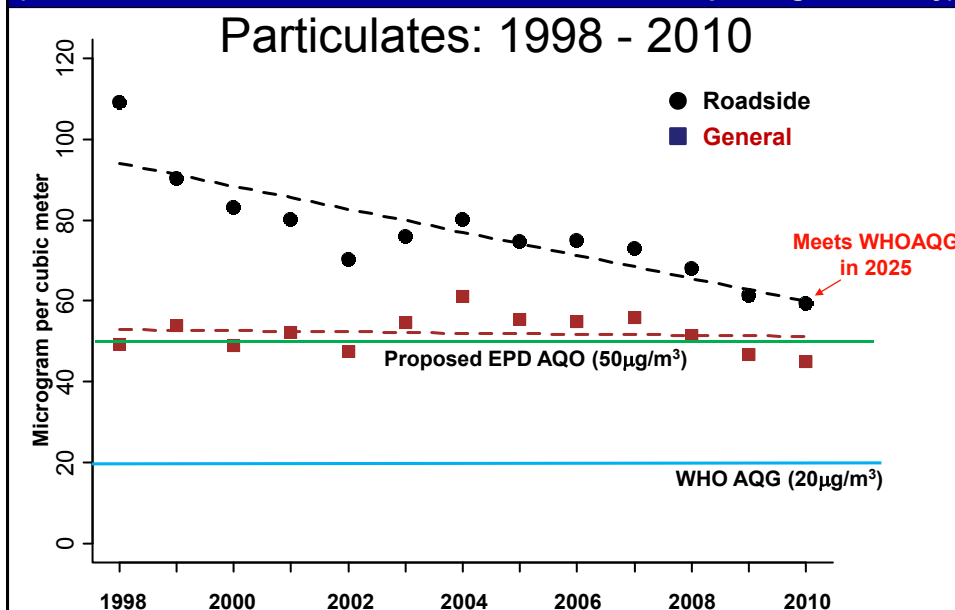


...but we have sufficient resource to improve our environment ...

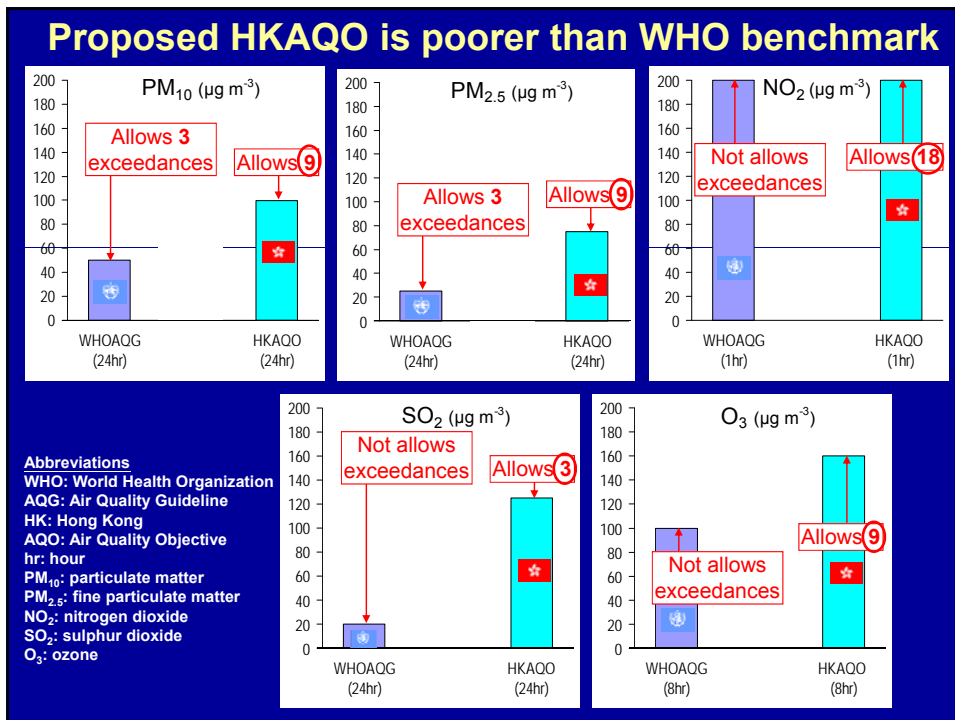
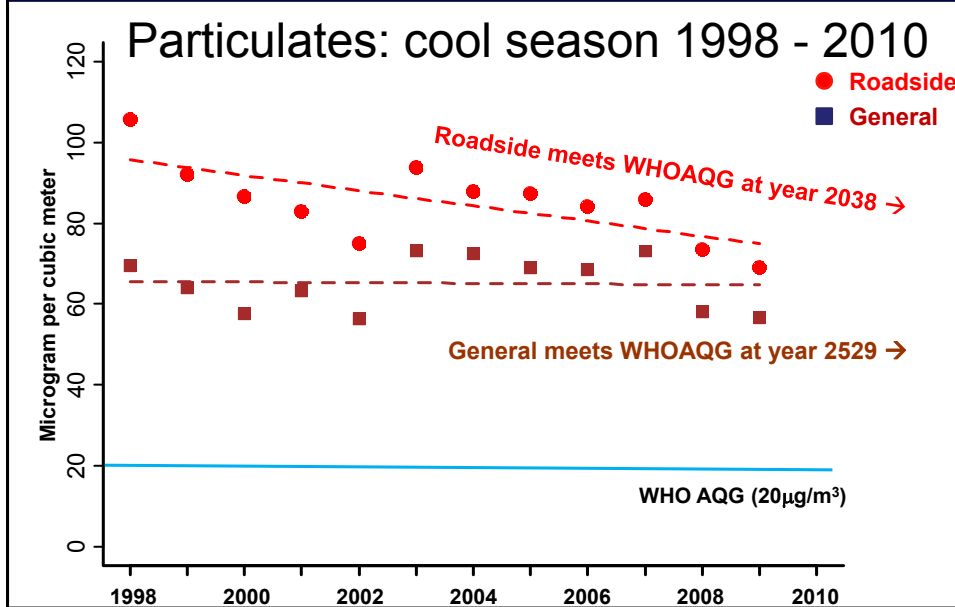


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We presented the trends of Hong Kong air quality and unsatisfactory progress on 28-01-2011 in Legislative Council (Panel on Environmental Affairs – subcommittee on Improving Air Quality)



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## Key questions



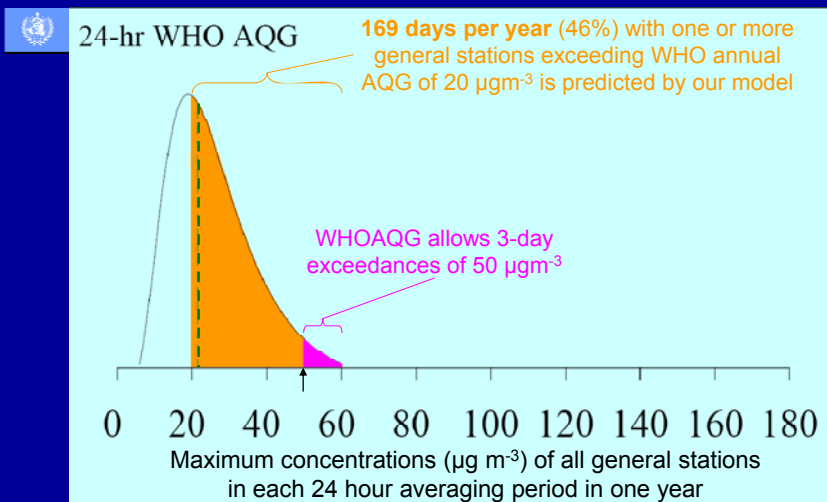
**Do these extra allowed exceedances matter?**

**Are these proposed HKAQO able to provide public health protection?**

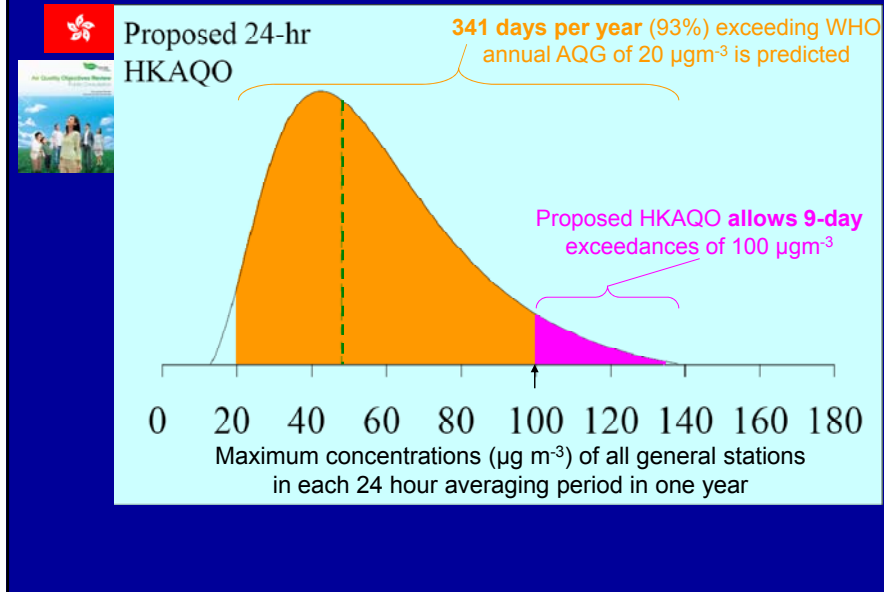
Before we can answer this question:

- We estimated what air quality will result from the proposed limits (HKAQO)
- Based on this estimate, we compared the excess health burden and cost of the proposed HKAQO with the WHO annual guideline limits

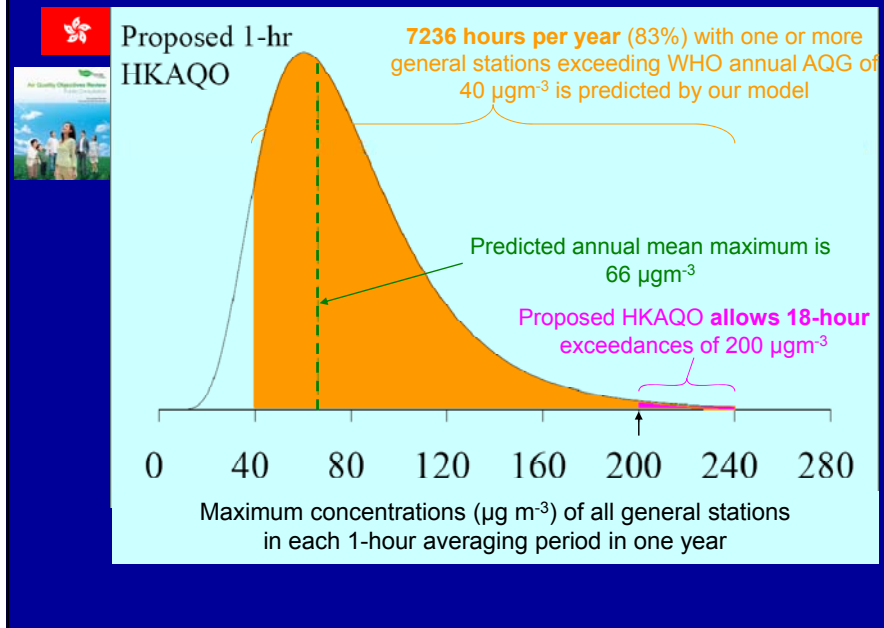
## Results: Particulates (PM<sub>10</sub>) at general stations



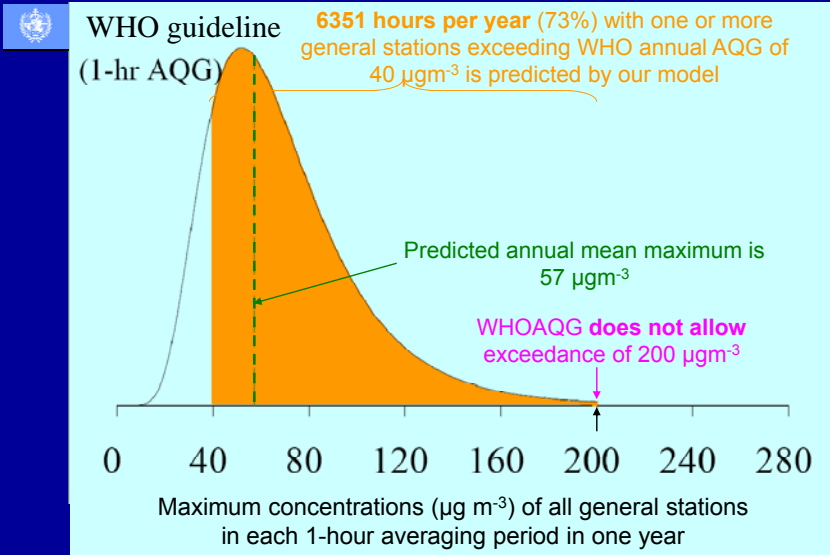
## Results: Particulates (PM<sub>10</sub>) at general stations



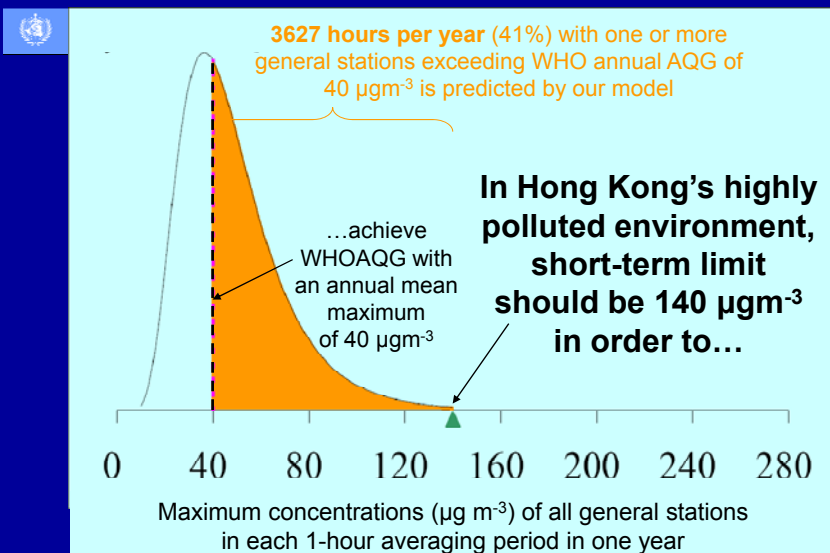
## Results: Nitrogen dioxide (NO<sub>2</sub>) at general stations



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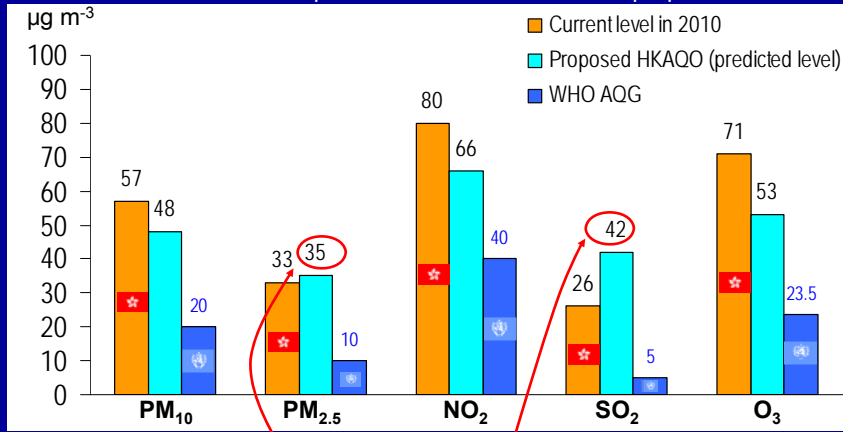


## Results: Nitrogen dioxide (NO<sub>2</sub>) at general stations



# Compare our results with 2010 levels

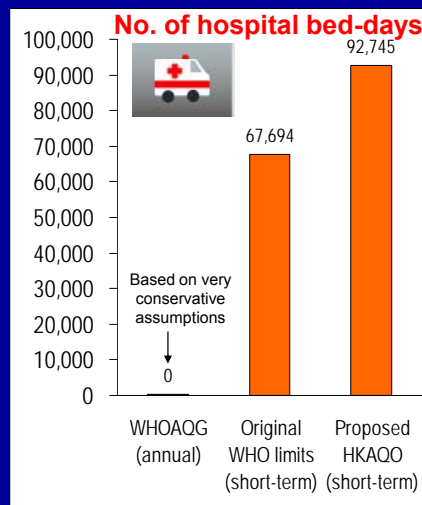
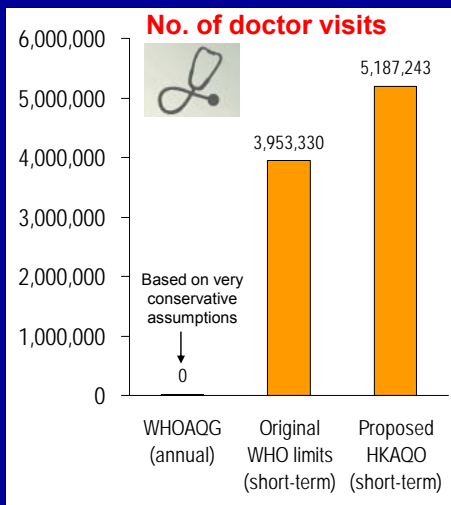
Comparing the annual mean maximum of 11 EPD general stations: the current levels and our predicted levels from the new proposed AQO



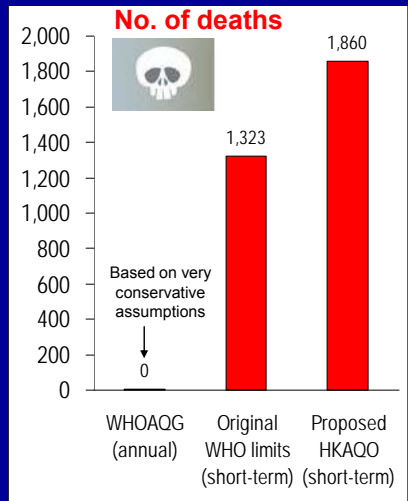
**Short-term limits in proposed HKAQO are worse than the current levels**

PM<sub>2.5</sub> data in 2010 is not fully available. We used data from 1-Nov-09 to 31-Oct-10 to represent the annual mean estimate in 2010.

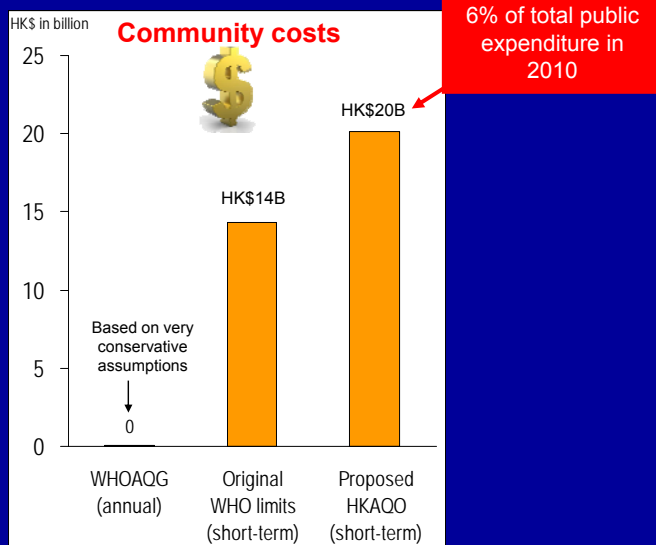
# Results: Health burden attributable to exposure to annual levels that exceed the WHO annual or annualized AQG



Results: Health burden attributable to exposure to annual levels that exceed the WHO annual or annualized AQQ



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## Answer to the key questions



Are these proposed HKAQO able to provide public health protection?

**No**

Do these extra allowed exceedances matter?

**Yes**

Should we adopt the full WHO guidelines to ensure population health protection?

**Yes**

### CONCLUSIONS ON GOVERNMENT'S AQO

- The government has chosen the lax limits of WHO interim targets and only one WHO guideline, and further degraded all of them by allowing additional numbers of exceedances. As a result, **the proposed HKAQO are poorer than the WHO benchmarks and even some existing Hong Kong pollution levels.**
- None of the proposed new HKAQO will provide adequate public health protection because even compliance with these AQO **will legally allow the Environmental Impact Assessment Ordinance to permit high levels of emissions and worsen our air quality.**
- WHO (2005) recommends achievement of the AQG in the shortest possible time, but **our government has mistakenly considered the AQG only as “long-term aspirational goals”** and ignored the ongoing damage to public health. Government has postponed people's right to breathe clean air.
- We suggest the HKSAR government should immediately adopt WHO Air Quality Guidelines with a frequent periodic review cycle and **prevent exploitation of emission limits by local and worldwide vested interests.**