

## 空氣污染與社會公義息息相關

### 1. 空氣污染如何影響公眾健康：

- a. 根據達理指數(Hedley Environmental Index, HEI<sup>1</sup>)計算，在 2009 年，空氣污染導致香港平均每日 2.3 人死亡，全年則有 845 人死亡；求診人次達 616 萬。
- b. 空氣污染嚴重影響公眾的身體健康，長者、兒童尤甚。
  - i. 每個人
    - 空氣污染削弱身體的免疫能力，增加患病機會
    - 暴露在高污染的情況超過 2 小時，心跳速度會加快<sup>2</sup>
    - 鼻敏感、哮喘患者病發的機會增加
  - ii. 長者
    - 在高污染的日子，較高機會中風或心臟病發
    - 如果家住路邊污染附近，患肺炎的機會高過 1 倍<sup>3</sup>
  - iii. 兒童
    - 影響肺部生長及肺功能<sup>4</sup>
    - 損害胎兒腦部發展，降低智商<sup>5</sup>
- c. 香港空氣污染源超過 53%時間來自香港本地<sup>6</sup>，路邊汽車是第二大污染源。因為濃度高，接近路邊的行人及市民，加上香港城市設計的問題，產生街谷效應，又經常塞車，令污染物不易吹散，加劇對人體的影響。

### 2. 空氣污染為何與社會公義扯上關係：

- a. 空氣污染對低收入的普羅大眾、升斗市民影響最大，他們對吸入身體、賴以活命的空氣質素**毫無選擇**，舉例而言：

<sup>1</sup> 達理指數是計算單一由空氣污染而引致各種健康影響的研究結果。詳情見：

<http://hedleyindex.sph.hku.hk/home.php>

<sup>2</sup> 資料來源：美國心臟協會 Circulation <http://circ.ahajournals.org/cgi/content/full/103/23/2810>

<sup>3</sup> 資料來源：American Journal of Respiratory and Critical Care Medicine

[http://www.eurekalert.org/pub\\_releases/2009-12/mu-ap1122109.php](http://www.eurekalert.org/pub_releases/2009-12/mu-ap1122109.php)

<sup>4</sup> 資料來源：Earth Times <http://www.earthtimes.org/articles/show/94503.html>

<sup>5</sup> 資料來源：Associated Press

<http://www.startribune.com/lifestyle/health/51183267.html?elr=KArksUUUoDEy3LGDiO7aiU>

<sup>6</sup> 研究報告詳見：[http://www.civic-exchange.org/eng/upload/files/200703\\_HKAirPollution.pdf](http://www.civic-exchange.org/eng/upload/files/200703_HKAirPollution.pdf)



- i. 流動性較低
    - 生活迫人，部分低收入人士被迫於馬路上或路邊工作（例如從事小販、清道夫、地盤工人、職業司機、售貨員等工類），長年吸入路邊廢氣；為兩餐難以轉工，無法提升技能、無法選擇較安全或較健康的工作，甚至得不到醫療保險的保障；
    - 多數住在路邊的人都是較窮困的，他們被迫日日呼吸有毒的路邊廢氣；
  - ii. 無資源投放於預防措施上
    - 貧窮家庭沒有金錢購入空氣淨化設施
    - 窮困人士較難得到空氣污染的資訊
  - iii. 因空氣污染引致生病，帶來負擔
    - 窮困人士為了生計，即使病了亦不能申請無薪病假
    - 大部分在職貧窮人士負擔不起醫療保險，而且工作上的醫療賠償亦大多欠奉
- b. 對於低下階層的民眾而言，與其關注空氣污染，不如擔心失業問題，溫飽難繼來得實際及迫切。但是，路邊廢氣令人容易生病，損害工作能力，甚至縮減壽命！路邊廢氣足以殺人，經常在路邊工作的低下階層民眾首當其衝，實在不容忽視！
3. 政府應帶頭改善空氣質素
- a. 正如清潔食水，清新空氣是市民健康生存的必需品。在 2010 年財政預算案中，政府為潔淨水源，撥出 79 億於淨化海港計劃，另外撥出 51 億興建垃圾焚化爐，改善空氣質素僅用 8.4 億！難道平均每日有 2.3 人死於空氣污染，是「死得人少」？
  - b. 富裕家庭(大多數是污染者)可移民海外，享受健康空氣、健康人生，但一般市民縱使不滿意居住或工作地區的空氣質素，也無能力搬離。故政府應該為一般市民改善空氣質素。
  - c. 香港貧富懸殊問題日趨嚴重，在政治光譜中，低下階層參與度較低、權力較小；但受空氣污染影響較深。社會上享有較多資源的一群或非牟利團體更應該為此發聲，致力改善路邊空氣污染，責無旁貸！



4. 研究顯示窮人健康最受空氣污染影響：

- a. 2002 年，美國癌症協會研究<sup>7</sup>顯示，柴油車輛司機、柴油機械操作工人及持續吸入柴油廢氣的工人，患上肺癌的機會率比一般人高出 50%。
- b. 2008 年，香港理工大學研究結果<sup>8</sup>指出，路邊小販及路邊店舖的售貨員，深受路邊廢氣影響，他們的肺功能比大學辦公室職員差。
- c. 2008 年，以香港大學多位學者為主的兩項研究結果更顯示，社會經濟地位較低的群組，因空氣污染引致疾病而死亡的風險較高。
  - i. 其中一項研究<sup>9</sup>證實，公屋居民因吸入懸浮粒子及二氧化氮而引致的死亡風險，比住在私樓的人高。
  - ii. 全部四種污染物（包括懸浮粒子、二氧化氮、二氧化硫及臭氧）對藍領工人階層的影響，遠遠大於從未受僱人士或白領階層。
  - iii. 另外一項調查結果<sup>10</sup>發現，社會剝奪指數(Social Deprivation Index, SDI<sup>11</sup>)達中、高程度的地區，其心血管疾病的非意外死亡率與懸浮粒子、二氧化氮、二氧化硫及臭氧等空氣污染物有密切關係。

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<sup>7</sup> 資料來源：American Cancer Society, EPA Reports Diesel Exhaust Linked To Lung Cancer (2002)  
[http://our.cancer.org/docroot/NWS/content/NWS\\_1\\_1x\\_EPA\\_Reports\\_Diesel\\_Linked\\_To\\_Lung\\_Cancer.asp](http://our.cancer.org/docroot/NWS/content/NWS_1_1x_EPA_Reports_Diesel_Linked_To_Lung_Cancer.asp)

<sup>8</sup> 資料來源：Respiratory health of road-side vendors in a large industrialized city (2008)  
<http://www.springerlink.com/content/27727j829007v068/>

<sup>9</sup> 資料來源：Socioeconomic disparities in air pollution-associated mortality (2008)  
<http://www.ncbi.nlm.nih.gov/pubmed/18396271>

<sup>10</sup> 資料來源：The Effects of Air Pollution on Mortality in Socially Deprived Urban Areas in Hong Kong, China (2008) <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2535621>

<sup>11</sup> 社會剝奪指數以 2001 年人口普查數據為基礎，並有 6 項計算指標：1). 失業情況 2). 家庭月入少於 250 美元 3). 沒有接受過教育 4). 一人家庭 5). 從未結婚 6). 租借房屋情況。



## Air Pollution and Social Justice

### 1. How air pollution affects public health:

- a. According to the Hedley Environmental Index (HEI<sup>1</sup>), air pollution killed 2.3 Hong Kong people a day in 2009. There were 845 deaths and 6.16 million doctor visits resulting exclusively from air pollution last year.
- b. Air pollution affects public health seriously, especially the elderly and children.
  - i. EVERYONE
    - Air pollution reduces the human body's natural defenses against sickness.
    - Heart rate increases after just two hours of exposure to high levels of roadside pollution<sup>2</sup>.
    - Air pollution increases the occurrence of allergies and asthma.
  - ii. ELDERLY
    - More likely to have a stroke or heart attack on days of high pollution.
    - If they live in a place with high levels of roadside pollution, more than double the risk of hospitalization for pneumonia<sup>3</sup>.
  - iii. CHILDREN
    - Lung function and lung capacity impairment<sup>4</sup>.
    - May harm the developing brain and cause lower IQ scores<sup>5</sup>.
- c. 53% of the time, the majority of pollution is from Hong Kong itself<sup>6</sup>. The second largest serious source of air pollution is roadside traffic, because of high concentrations and proximity to pedestrians. In addition, the problem of urban planning causes the “street canyon effect”, with serious traffic congestion preventing the dispersion of pollution.

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<sup>1</sup> HEI monitors and publishes in real-time the costs of Hong Kong's air pollution in terms of public health impacts and their monetary value. For details: <http://hedleyindex.sph.hku.hk/home.php>

<sup>2</sup> Source: American Heart Association, Circulation  
<http://circ.ahajournals.org/cgi/content/full/103/23/2810>

<sup>3</sup> Source: American Journal of Respiratory and Critical Care Medicine  
[http://www.eurekalert.org/pub\\_releases/2009-12/mu-ap1122109.php](http://www.eurekalert.org/pub_releases/2009-12/mu-ap1122109.php)

<sup>4</sup> Source: Earth Times <http://www.earthtimes.org/articles/show/94503.html>

<sup>5</sup> Source: Associated Press  
<http://www.startribune.com/lifestyle/health/51183267.html?elr=KArksUUUoDEy3LGDiO7aiU>

<sup>6</sup> Full report: [http://www.civic-exchange.org/eng/upload/files/200703\\_HKAirPollution.pdf](http://www.civic-exchange.org/eng/upload/files/200703_HKAirPollution.pdf)



## 2. Why air pollution is a social justice issue:

- a. Air pollution harms the poor the most.
  - i. NO MOBILITY
    - Poor people are more likely to work in highly polluted conditions, and suffer from the worst traffic emissions, e.g., outdoor workers, construction workers, professional drivers and retail staff. They cannot afford to change jobs, upgrade their skills or choose less dangerous or less unhealthy work.
    - Poor people are more likely to live at the roadside, exposing them to higher levels of roadside pollution. But they cannot move away or emigrate to other countries like rich people.
  - ii. CANNOT INVEST IN PREVENTION
    - Poor families can't afford expensive air filters.
    - Poor people can't access information about air pollution easily.
  - iii. CANNOT AFFORD TO FALL SICK
    - Poor people can't afford to take no-paid sick leave, as they have to earn a living.
    - Frequently, the working poor have no health insurance or worker compensation.
- b. *Poor people often believe that air pollution is a secondary concern compared to unemployment. But air pollution can directly kill a person<sup>7</sup>. At the very least, it will definitely increase sick days, reduce one's life span and impair one's ability to work to full capacity. Sadly, poor people believe that air pollution is not their concern, but, the fact is, air pollution kills and disadvantages this group first.*

## 3. Government should take action to improve air quality:

- a. Fresh air is a basic necessity of life, which is similar to clean water and public hygiene. The Government allocated \$7.9 billion for sewage and \$5.1 billion for incineration in the 2010 budget but only \$840 million for air clean-up in the same budget even though air pollution is killing more people than SARS in 2003!

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<sup>7</sup> Source: Air pollution is a major environmental risk to health and is estimated to cause approximately 2 million premature deaths worldwide per year (WHO). For details:

<http://www.who.int/mediacentre/factsheets/fs313/en/index.html>



- b. Rich people (the polluters) are profiting at the expense of the poor's right to breathe clean, healthy air.
- c. This inequality of wealth is worsened by the fact that poor people have much less political power than other groups and individuals. Thus, it is incumbent on the more privileged and NGOs to take up the crusade of cleaning up roadside pollution to protect those with the smallest voice in society.

#### 4. Research finding:

- a. In 2002, the American Cancer Society studied diesel truck drivers, diesel mechanics, and others constantly exposed very directly to diesel exhaust and found that their risk of lung cancer increased by up to 50%<sup>8</sup>.
- b. In 2008, the research of The Hong Kong Polytechnic University<sup>9</sup> found that roadside workers and street-level retail staff exhibit lower lung capacity than university office staff.
- c. In 2008, there were two University of Hong Kong research studies which found that individuals with lower socioeconomic status (SES) were more vulnerable to the health effects of air pollution and an increased risk of mortality than those with higher SES.
  - i. People living in public rental housing were shown to have a higher mortality risk associated with exposure to PM<sub>10</sub> and NO<sub>2</sub> than people living in private housing<sup>10</sup>.
  - ii. The health effects of all four pollutants (PM<sub>10</sub>, NO<sub>2</sub>, SO<sub>2</sub> and O<sub>3</sub>) were significantly more pronounced in blue-collar workers than those who were never employed or employed in white-collar professions.

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<sup>8</sup> Source: American Cancer Society, EPA Reports Diesel Exhaust Linked To Lung Cancer (2002)  
[http://our.cancer.org/docroot/NWS/content/NWS\\_1\\_1x\\_EPA\\_Reports\\_Diesel\\_Linked\\_To\\_Lung\\_Cancer.asp](http://our.cancer.org/docroot/NWS/content/NWS_1_1x_EPA_Reports_Diesel_Linked_To_Lung_Cancer.asp)

<sup>9</sup> Source: Respiratory health of road-side vendors in a large industrialized city (2008)  
<http://www.springerlink.com/content/27727j829007v068/>

<sup>10</sup> Source: Socioeconomic disparities in air pollution-associated mortality (2008)  
<http://www.ncbi.nlm.nih.gov/pubmed/18396271>



- iii. In areas rated "middle" or "high" on the Social Deprivation Index (SDI<sup>11</sup>), significant associations were found between levels of PM10, NO2, SO2 and O3 and incidents of non-accidental cardiovascular mortality<sup>12</sup>.

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<sup>11</sup> SDI derived from the proportions of the population with a) unemployment, b) monthly household income < US\$250, c) no schooling at all, d) one-person household, e) never-married status, and f) subtenancy, from the 2001 Population Census.

<sup>12</sup> Source: The Effects of Air Pollution on Mortality in Socially Deprived Urban Areas in Hong Kong, China (2008) <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2535621>

