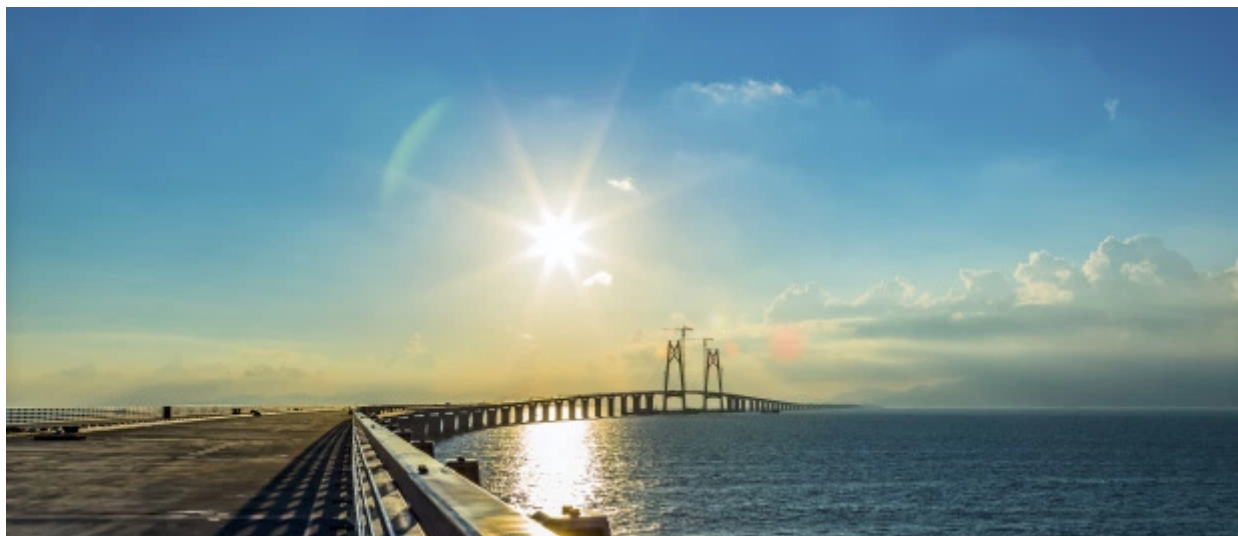


# The Greater Bay Area desperately needs an emissions inventory

Posted on February 4, 2019 by James Ockenden in From the editor, News



The Greater Bay Area aims to become “Asia’s Silicon Valley”

“What is the emissions factor of a fox?” an environmental researcher might ask the Norwegian Environment Agency (NEA).

“Male or female?” it would reply.

The level of detail uncovered by NEA and the Statistics Norway in totting up the nation’s pollution is incredible, intricate, even exhausting. Its 304-page 2016 report (<https://www.ssb.no/natur-og-miljo/artikler-og-publikasjoner/the-norwegian-emission-inventory-2016>), the methodological basis for all Norway’s future emissions inventories, pulls together not only general emissions models but also more detailed satellite models which cover specific emissions. It catalogues pollution from house fires (detached, semi-detached, apartments) and car fires; drills into the cattle and livestock populations; itemises pollution from food and drink, paraffin wax use, tobacco use, lubricant use, road paving with asphalt and every industry contributing to Norway’s economy. Better yet, this most scrupulous examination of every little whiff of Norwegian emissions ends with the section “Areas for further improvement”.

And then we look at our own poor efforts in the Greater Bay Area and we feel sad. The only official emissions inventory ([https://www.epd.gov.hk/epd/english/environmentinhk/air/data/emission\\_inve.html](https://www.epd.gov.hk/epd/english/environmentinhk/air/data/emission_inve.html)) in the region is from Hong Kong but it’s weak sauce, particularly for a city so proud of its status as a “smart city”. The skinny report is produced with little transparency and calculated annually based not on actual emissions measurements but solely derived from production and consumption statistics. If there’s no official statistics or data on a pollution source, it does not exist.

# Guangdong lacks any emissions inventory

But even Hong Kong's flimsy communiqué is better than what we have from across the border. While Hong Kong is regularly blanketed by Guangdong pollution, we have no idea of where exactly that cross-border pollution comes from... and neither does the Chinese government. "Guangdong Province faces major challenges to address the regional air pollution problem due to the lack of an emissions inventory," wrote authors Hui Chen and Jing Meng in *Frontiers of Earth Science* (<https://link.springer.com/article/10.1007/s11707-016-0551-x>) in 2017.

And so, we don't know if the fine particle "background pollution" choking Hong Kong is predominantly from 19 million Guangdong cars, from Shenzhen electric bus brake pads, from chemical plants burning coal, from coal power plants, from wild boar farts, from China's marine traffic, from the 15 million smokers in the province, from farmers burning fields, or something else surprising altogether. And if we don't know what it is, we've no hope of campaigning against it or finding alternative solutions.

In case one thinks an undertaking of the scope of Norway's emissions inventory is beyond tiny Hong Kong or the nascent Greater Bay Area, let's remind ourselves that little "mosquito" Norway (as China's Global Times editor-in-chief Hu Xijin recently called it ([https://twitter.com/HuXijin\\_GT/status/1092628210645270529](https://twitter.com/HuXijin_GT/status/1092628210645270529))) has a population of 5.3 million and a GDP of US\$399 billion, only a little fewer people and a little more money than Hong Kong – and the NEA which put together the landmark document was only three years old at the time. It's not a stretch to believe the Greater Bay Area's 70 million population and US\$1.5 trillion GDP can surely at least match Norway's achievement here? We're not short on tech, innovation or analytical clout in the region: in Shenzhen, jaywalkers are caught and fined by facial recognition technology ... are we saying a detailed and thorough emissions inventory is impossible?

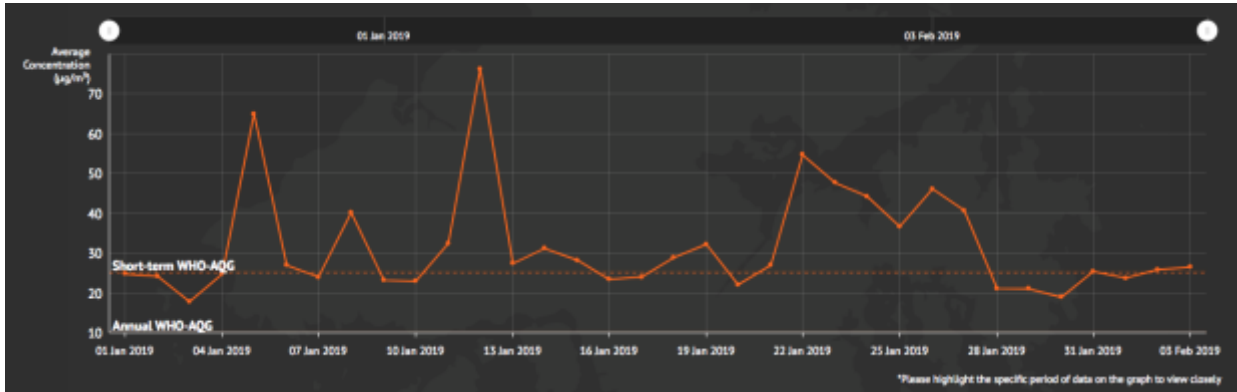


Advertising for the Greater Bay Area in Hong Kong

If the Greater Bay Area was still a developing 1980s backwater, was still the quaint Pearl River Delta chugging along at 10% annual growth behind a dark red curtain, it might be forgiven for being so clueless about its pollution. But the governments on both sides of the border have made a lot of noise

about this new region: ministers work it into every speech, propaganda posters pepper the Hong Kong MTR, not a day goes by when Hong Kong's leader Carrie Lam doesn't mention this "international innovation and technology hub".

So let's hold our leaders up to the hype. If Greater Bay Area truly wants to come close to rivalling the original Bay Area, if it dares to call itself "Asia's Silicon Valley", it needs a world-class emissions inventory to suit, unless we're defining "Asia's Silicon Valley" as "a really shitty third-world version of Silicon Valley", which is probably not what President Xi Jinping has in mind (<https://www.ft.com/content/fe5976d8-ab81-11e8-94bd-cba20d67390c>).



PM2.5 in Hong Kong in January, according to the Hedley Index

There's some urgency to the situation. January 2019 has been hard on the lungs in Hong Kong, a monotonous slog through consistently "moderate to high" pollution (5-10 under AQI (<https://aqicn.org/city/hongkong/>) or Hedley Index (<http://hedleyindex.hku.hk/>) standards), day after day, with PM2.5 levels alone consistently well above both the annual and the short-term World Health Organisation (WHO) Air Quality Guidelines ([https://apps.who.int/iris/bitstream/handle/10665/69477/WHO\\_SDE\\_PHE\\_OEH\\_06.02\\_eng.pdf;jsessionid=BCE1F33F2B7E9A70026E2C877364129C?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/69477/WHO_SDE_PHE_OEH_06.02_eng.pdf;jsessionid=BCE1F33F2B7E9A70026E2C877364129C?sequence=1)) (AQGs). The PM2.5 pollution in particular is killing us, without a doubt: according to the British Medical Journal (<https://www.bmj.com/content/350/bmj.h2757/rr-1>), an increase of just  $3\mu\text{g}/\text{m}^3$  in annual PM2.5 exposure was associated with a 9% increase in deaths from ischemic heart disease and 3-4.5% increases in all deaths.

A robust emissions inventory is the minimum standard we should accept for our regional air quality. To live in a truly "smart" Greater Bay Area, we need to empower our environmentalists, policymakers, lobbyists and citizens with data, rather than seeing "pollution" as something separate from our city's daily life to be explained away as "weather". We don't want to hear "regional background pollution", we want clear specific information which helps us target the culprits and villains, and make the air better so we can go play outside.

- emissions inventory
- featured
- Greater Bay Area
- Norway
- pollution