

Urban heat traps could be at their worst

May Chan

The sweltering "heat island effect" in Hong Kong's packed urban areas – where temperatures are up to 12 degrees Celsius above those in rural districts – could have peaked, the climate expert who pioneered studies of the phenomenon says.

Tim Oke, of the University of British Columbia, said the effect in Hong Kong was already very pronounced by international standards and he could not see it going much higher.

Professor Oke was speaking after a two-day international workshop at Polytechnic University. Studies by the university have shown that air temperatures in urban areas can exceed rural temperatures by 2 to 10 degrees, and surface temperatures by 5 to 12 degrees.

"I don't think the heat island effect in Hong Kong can get much worse because 12 degrees extra is already very high by any world standard," he said.

Professor Oke said Hong Kong could serve as an example of the heat

Hot and bothered

On winter nights, the average difference in air temperatures in urban and rural areas is (in degrees Celsius)

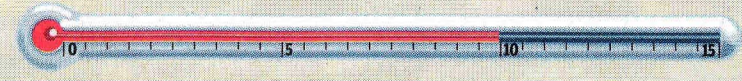
7-8

On summer nights, the average difference in air temperatures in urban and rural areas is

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On the night of January 31, 2007, the temperature difference between hot Mong Kok and cooler Ta Kwu Ling was

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SCMP GRAPHIC

SOURCES: POLYU, NASA

island effect as it encompassed most of the key factors – wall-like buildings along waterfronts that kept out cool, cleansing sea breezes, and densely built commercial and residential buildings with a lack of vegetation and heat-absorbing construction materials.

"The development projects in Hong Kong should fit into a bigger plan instead of just individual development projects," he said.

"It requires political will and

vision of what the city should be like in the future."

In the meantime, the city should consider improving its urban designs by planting trees, introducing more water into its urban settings and even revamping parts of the city, like Tokyo did a few years ago, Professor Oke said.

Nasa scientist Dale Quattrochi, who also took part in the workshop, suggested that the city link urban heat-island data to public health pol-

Harry's view

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icies, as high temperatures in urban areas could have medical implications, such as asthma, heat stress and heat strokes.

The universities' temperature figures were drawn from data collected through field trips and analysis of Observatory data from 2000 to last year, and two Nasa satellite images taken in January and August last year.

The strongest heat island effect is in Mong Kok, where the air temperature was 18.9 degrees on January 31 last year, compared with 10 degrees in Tak Kwu Ling, the coolest area. At the same time, Mong Kok's surface temperature was 12 degrees higher than that at Tak Kwu Ling. The average air temperature difference between urban and rural areas ranges from 7 to 8 degrees on winter nights and 5 to 6 degrees on summer nights.

Janet Nichol, associate professor at Polytechnic University, said Causeway Bay and Central were among the hottest urban places in Hong Kong.

Power firms asked to cut down on coal

The two power companies have been asked to use more natural gas and less coal during the Olympic Games in an effort to improve air quality.

Environment Minister Yau Tang-wah told legislators the suggestion had been made in talks between the government, CLP Power and Hongkong Electric.

"We approached the power companies about how to reduce sulfur dioxide emissions by adjusting the use of coal and increasing the use of natural gas," he said.

Hongkong Electric said it was having talks with a supplier about getting extra gas.

Meanwhile, a CLP spokesman said it was aware concerted efforts were needed during the Games' equestrian events.

Agnes Lam

Time for new thinking on urban planning

It is of little comfort to be told that the city's sweltering "heat-island effect" is unlikely to get any worse. Canadian expert Tim Oke said this week that the temperature differences between urban areas and the countryside were already extremely pronounced by any world standards and he did not expect to see them going much higher. This amounts to differences of 2 to 10 degrees in air temperature and 5 to 12 degrees on the surface. On an average winter night, a person may need a sweater in Tak Kwu Ling but only a shirt in the middle of Mong Kok.

Hong Kong has all the characteristics that create these heat traps, including densely packed buildings that block air flow and prevent sea breezes from the harbour to clear the air. Our buildings have very little vegetation; few have rooftop gardens. And they rarely use heat-absorbing materials. New buildings should incorporate these environmentally friendly features.

Although the government means well by imposing building-height restrictions in Tsim Sha Tsui and the Mid-Levels, the result may be bulky buildings that expand sideways instead of going up as developers find new ways to maximise saleable floor areas. This may make matters worse. We are not only sacrificing our quality of life but jeopardising our health. Heat traps and air pollution go hand in hand, and exacerbate a variety of health problems.

Unless we summon our collective will to improve urban planning, the situation will not improve. Clearly, we can no longer afford to over-build, as we have in the past. To this end, future zoning must take into account the effects of walled-in pollution and trapped heat when any development application is made. There should be criteria for approving or rejecting an application that take these factors into account. Where it is safe, people should be encouraged to introduce more vegetation and greenery to their buildings. It is an encouraging sign that green groups and residents are becoming increasingly vocal about developments that might raise concerns about the wall effect, visual impact and quality of life in their neighbourhoods.

Developers need to be made aware there has been a shift in the public mood. People want livable space with room for air to flow, not shoe-boxes for homes and oversized buildings for offices.

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