

Noise in Singapore

Sounds awful: Can't sleep, can't talk because of noise

Serangoon, Clementi and Bukit Timah are among the noisiest neighbourhoods in Singapore, one study has found. What does it mean to be living with noise pollution? *The Sunday Times* finds out.

Ng Jun Sen and Tang Fan Xi

For the past three decades, Mr K.C. Tang, 72, and his wife have been communicating by shouting at each other.

Even then, the couple can barely make out what each other is saying, due to the unceasing cacophony of horns, sirens and revving engines from the Central Expressway (CTE) around 40m away from their three-room flat at Block 115, Potong Pasir Avenue 1.

Said Mr Tang, a retiree, with a sigh: "We have grown used to this." Over in Yew Tee and Choa Chu Kang, where MRT tracks are within spitting distance from some Housing Board blocks, residents say that they, too, have become accustomed to living with noise.

Choa Chu Kang resident Nadia Begum, 29, whose home is some 30m away from a stretch of MRT track where a train rattles past every few minutes, said: "Closing all the windows is not sufficient. We have to use pillows over our heads to muffle

the noises at night."

Mr Tang and Ms Begum are among the tens of thousands living next to busy roads, MRT tracks, construction sites and shopping malls around Singapore, who are coping with din just outside their homes.

A new study from the National University of Singapore (NUS) found that Singapore's average outdoor sound level throughout the day is 69.4 decibels, which is equivalent to the noise made by a vacuum cleaner.

This exceeds the National Environmental Agency's recommendation of no more than 67 decibels averaged over an hour, and is a whisker shy of the World Health Organisation threshold of 70 decibels a day. Consistent exposure to that level can cause hearing impairment.

The study - led by NUS graduate student Diong Huey Ting and Professor William Hal Martin, who heads the university's masters in audiology programme - took 18,768 outdoor sound measurements between last December and February to determine how noisy Singa-

pore is. Worryingly, around 27 per cent of the gathered data exceeded 70 decibels, said Ms Diong.

The study also identified the noisiest places in Singapore. Serangoon tops the list of planning zones, with an average of 73.1 decibels from more than 100 noise readings.

Said Ms Diong, 27: "In densely populated Singapore, common amenities like shopping malls, hawkker centres and playgrounds all contribute to community noise, on top of that created by traffic."

Noise pollution is inevitable in big bustling cities around the world and Singapore is experiencing it too.

While there are no comparative studies, anecdotally, the city has become noisier over the years as it continues to develop - with more expressways, longer MRT lines and the cycle of construction and demolition playing out over and over again.

This is on top of new trends like the growing popularity of integrated mixed-use developments, with retail spaces, offices, transport hubs and homes in the same complex.

This worries Mr Spencer Tan, 30, of noise monitoring firm



Dropnoise. "Even those who live on the higher floors will not be spared since sound travels upwards." To try to mitigate against noise pollution, the Government has put in

place several measures, including tighter enforcement of construction sites and urban planning regulations. Several solutions are still undergoing trials and may be rolled out

in the coming years.

But some are concerned that these measures may not be able to keep pace with a growing nation.

Mr Tang's home became noisier

when the CTE was widened from a three-lane to a four-lane dual carriageway in 2012 to accommodate more traffic. Said Mr Tang in Mandarin: "We complained then, but

nothing much can be done about it since it is impossible to fight progress."

Dropnoise, which produces noise reports for residents and condom-

inium managements, has seen business boom since it started the monitoring service last year.

Mr Tan gets more than three inquiries from frustrated residents to

Serangoon is noisiest part of Singapore

A total of 18,768 sound measurements were recorded over a 2½-month period in a new study on noise by NUS audiologist William Hal Martin and graduate student Diong Huey Ting.

According to the data, the noisiest parts of Singapore (based on planning zones) are:

- Serangoon (73.1 decibels)
- Orchard (72.8 decibels)
- Outram (72.8 decibels)
- Bukit Timah (72.6 decibels)
- Clementi (71.8 decibels)
- Kallang (71.5 decibels)
- Marina South (71.0 decibels)
- Downtown Core (71.0 decibels)
- Yishun (70.8 decibels)
- Rochor (70.3 decibels)

The noisiest regions are:

- Central region (70.0 decibels)
- North-east region (69.9 decibels)
- East region (69.8 decibels)
- West region (67.8 decibels)

• North region (66.3 decibels)

Separately, *The Sunday Times* took average noise readings over a five-minute duration at two sites.

The measurements were recorded by noise monitoring firm Dropnoise.

MR K.C. TANG'S HOME

Location: Block 115, Potong Pasir Avenue 1

Main source of noise pollution: Central Expressway

Indoor average noise level: 66.6 decibels

Outdoor average noise level: 74.2 decibels

MS NADIA BEGUM'S HOME

Location: Block 537, Choa Chu Kang Street 51

Main source of noise pollution: MRT tracks

Indoor average noise level: 60.5 decibels

When a train goes past: 73.2 decibels

Mr Spencer Tan of noise monitoring firm Dropnoise measuring the noise level at Block 537, Choa Chu Kang Street 51, last Wednesday. ST PHOTO: KEVIN LIM

attend to every week. Its reports can be used in court action against noisy neighbours, or submitted to regulatory bodies as proof of noise pollution.

Within Mr Tang's home, for example, Dropnoise, using a sensitive sound meter, recorded an average of 66.6 decibels over a five-minute period.

"This means that the resident is hearing a constant background noise equivalent to a loud conversation. He will have to speak louder if he wants to be heard," said Mr Tan.

Since the problem of noise pollution is here to stay, doctors said residents should be more aware of ways to protect their hearing. These include the use of hearing protection, such as ear plugs and ear muffs, as a temporary solution, said the head of Singapore General Hospital's (SGH's) otolaryngology department, Dr Barrie Tan.

Dr Low Wong Kein, senior ear specialist at Mount Elizabeth Novena Hospital, said besides hearing impairment, constant exposure to loud noises can cause health problems such as hypertension and heart disease.

Psychologist Nisha Geetha Thevaraja from the SGH department of psychiatry said personal and work relationships can be affected by irritability and anger issues brought about by noise pollution. Those who have become accustomed to loud noises are "usually unaware of these implicit effects noise pollution has on their lives", she added.

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No sound of silence

World Health Organisation guidelines say 70 decibels is the sound level which - if someone is exposed to it consistently for a full day - can lead to hearing impairment. Here's how Singapore and other cities stack up.

SINGAPORE

The mean noise level is 69.4 decibels, according to an NUS study. It is averaged from more than 18,000 sound readings taken over a 2½-month period.

NEW YORK CITY

Noise generally hovers around 70 decibels on the streets of Manhattan, according to measurements taken by magazine NYMag.

TAINAN

A 2009 traffic noise study conducted in Taiwan's Tainan city in 2009 found that 90 per cent of the population was exposed to more than an average of 62 decibels during peak hours.

HONG KONG

In one of Asia's busiest financial hubs, 13.6 per cent of the population is exposed to a noise level of above 70 decibels, according to the government's Environmental Protection Department.

CAIRO

The average noise level in Egypt's capital is 90 decibels. It hardly falls below 70 decibels, according to a 2007 study by the Egyptian National Research Centre.

SHANGHAI

Road noise on Shanghai's streets hits an average of 71.9 decibels during the day and drops to 65.9 decibels at night, according to newspaper Shanghai Daily.

Noise barriers and no-work Sundays among measures taken

There are measures already put in place to plan for, monitor and reduce noise levels in Singapore, said multiple government agencies.

At MRT tracks, around 10km of noise barriers have been put up at 16 locations - including Admiralty, Marsiling, Sembawang, Ang Mo Kio, Pioneer and Yew Tee - in the first phase of the \$300 million project.

Originally slated to be completed in 2019, this was delayed until 2022, Transport Minister Khaw Boon Wan announced earlier this month. This is because the Land Transport Authority (LTA) had to "review the effectiveness" of the project's first phase.

Installation works for the remaining 10km of noise barriers in the

second phase will start in 2020.

Said an LTA spokesman: "The installation of noise barriers requires complex and extensive retrofitting of existing railway structures and we need also to consider whether there will be enough space for railway maintenance works, and thus is not always possible."

Similar noise barriers have also

been installed at two expressway viaducts - at Anak Bukit Flyover and a stretch of the West Coast Highway - as part of a trial to determine their effectiveness.

Residents interviewed gave mixed reactions when they were asked whether these barriers work.

Yew Tee resident Tan Liak Eng was hopeful when he first saw them

appear on the MRT tracks next to his flat in 2015, believing the source of his nightmares was gone for good.

Today, the 61-year-old retail supervisor shakes his head whenever he sees the barriers. "I do not think that they have made a difference in lowering the sound level. It is the worst around 11pm to 1am, when I have to sleep," said Mr Tan, who

has been living at Block 619, Choa Chu Kang North 7, for more than 15 years.

The LTA is also looking at ways to use a material on roads that can reduce the noise generated from the friction between surfaces and vehicle tyres.

While these are still being tested, other measures to control transport noise have been implemented.

Trains are fitted with noise-dampening wheels. The LTA also clamps down on vehicles with illegal modifications, which include modified exhausts. There were

1,161 such cases last year.

When it comes to construction sites and industrial premises, the National Environment Agency (NEA) actively enforces its maximum permissible noise limits.

Contractors have to set up real-time noise monitoring meters to continuously monitor the noise generated from their sites, said an NEA spokesman.

The Quieter Construction Fund, a \$10 million co-funding scheme, allows construction firms to be reimbursed for up to half of the cost of purchasing or leasing quieter con-

struction equipment, noise control equipment and other innovative noise-reduction solutions not yet readily adopted by the industry.

NEA also introduced a no-work rule on Sundays and public holidays in 2012 for construction sites located within 150m from homes and noise-sensitive premises such as hospitals.

Since then, construction noise-related complaints have dropped from an all-time high of about 19,800 in 2012 to about 10,400 last year, said the spokesman.

As for homes, HDB flats and

Living with noise
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VIDEO
We measure noise levels in homes near an expressway, MRT track
<http://str.sg/4BWj>