

Study: Richer households use air-con to beat the heat

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When the weather is hot, lower-income households tend to use more water, while higher-income households consume more electricity, a local study has found.

The National University of Singapore (NUS) study tracked the water and electricity bills of about 130,000 households living in apartments from September 2012 to December 2015.

It found that when the temperature went up by 1 deg C, the average household living in a two-room apartment used nine

litres more water a day. At the time of the study, less than a fifth of the two-room apartments had air-conditioning.

But among higher-income households, higher electricity consumption was evident, but there was no significant change in water use. These households were those in five- or six-room apartments (including executive flats and condominiums) where air-conditioning is prevalent.

The average increase in electricity demand was 2kwh a day for every 1 deg C rise, which is equivalent to operating an air-

conditioning unit for an additional two hours daily.

The study, conducted by Associate Professor Alberto Salvo from NUS, was published in the journal *Nature Communications* yesterday.

He said: "This can facilitate better design and allocation of water and electricity grids.

"Air-conditioners powered by electricity generated from burning fossil fuels come at an environmental cost, but one added benefit is that they may reduce a household's water demand when seeking relief from heat."

Previous research found that residents in one- or two-room apartments have a mean annual household income a person of US\$9,300 (S\$12,700), and air-con adoption is only 14 per cent.

Condominium apartments are characterised by a mean household income a person of US\$68,900, and air-con penetration is 99 per cent.

Prof Salvo will conduct studies to see if the findings for Singapore can be extended to urban populations in other cities in tropical Asia.

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