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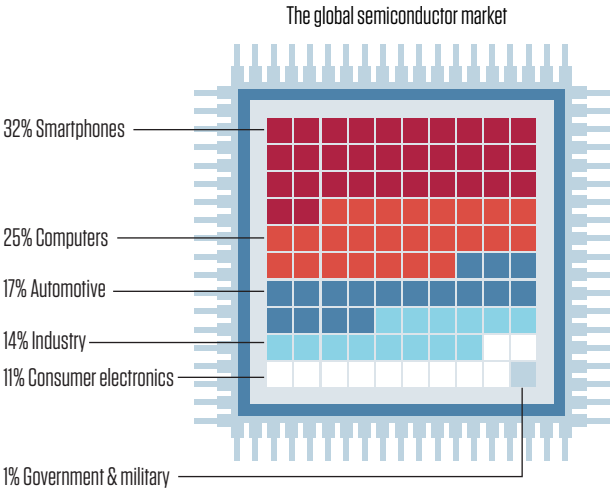
TSMC tackles water demands of tiny chips

Semiconductors are everywhere

There are trillions of semiconductors driving almost all electronic goods; without them, the modern world simply wouldn't work.

What's more, the transistors within these complex structures are minuscule – 10,000 times finer than a human hair.

Investment Manager Tom Miedema investigates the ubiquitous chip.

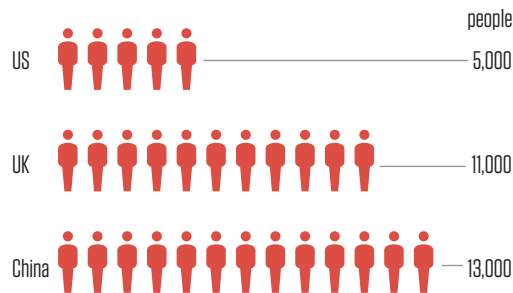


They're microscopic, but making them uses a lot of water

The average semiconductor facility uses

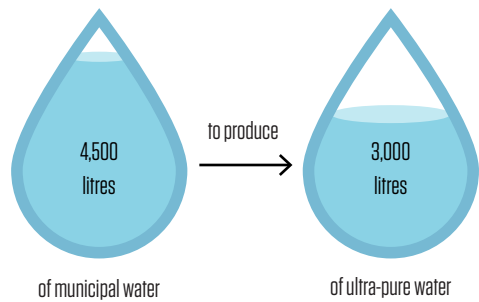
38,000,000 litres of water a day

That's enough to provide water for



Silicon wafers are subjected to cycles of etching to build up circuit patterns. After each cycle they are rinsed with ultra-pure water.

A single silicon wafer can need up to



Ultra-pure water

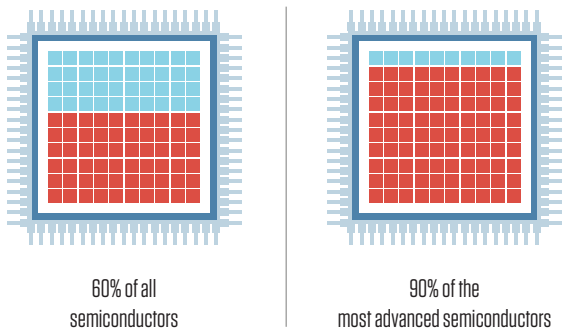
Municipal water is de-ionised to help prevent corrosion

It is then filtered and exposed to UV light to remove bacteria

It is 'polished' to remove any final trace of contaminants

Made in Taiwan

Taiwan is the home of semiconductor manufacturing

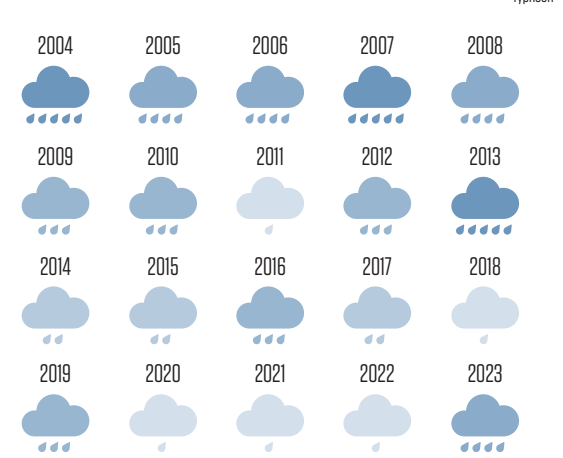


But Taiwan is already subject to water stress

It relies on rainfall for most of its water, and up to 30% of that comes from typhoons.

And the frequency of typhoons is reducing.

Number of named typhoons approaching Taiwan



The semiconductor is one of the world's most technologically advanced products, and is integral to the global economy. Yet its future relies on thinking intelligently and creatively about one of our most fundamental resources: water.

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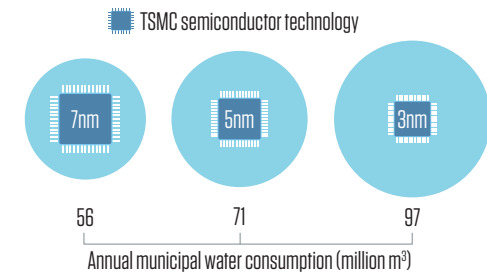
Stock Examples

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Made by TSMC

Semiconductors are getting thirstier

The smaller and more complex chips become, the more water intensive the manufacturing process is, with more cycles of etching and rinsing. TSMC is the leading Taiwanese manufacturer of advanced semiconductors. As its technologies advance, its water consumption grows.



What is TSMC doing about its water use?

TSMC aims for a 30% reduction in its water consumption and to reclaim over 60% of its water by 2030. It is involved in developing water reclamation technologies and the construction of desalination plants.

