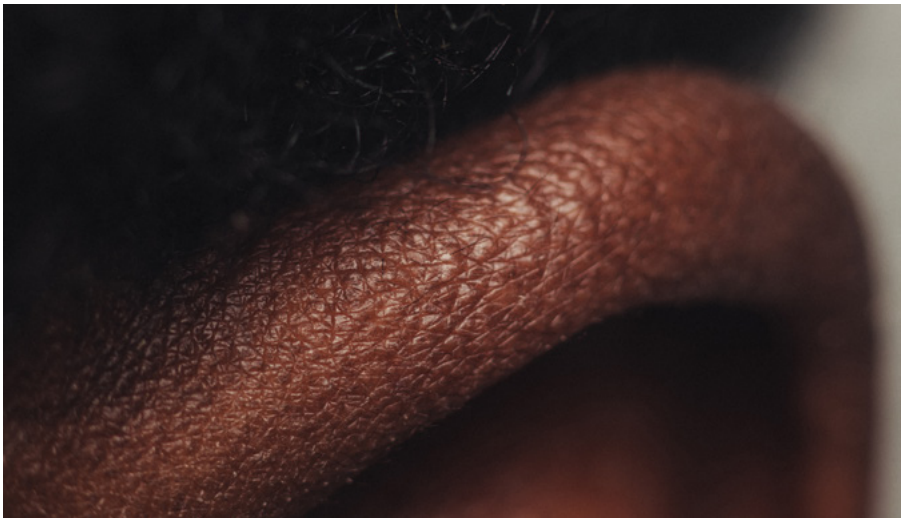
OPPORTUNITY #5

What if cities went silent?

SOUND OF SILENCE

Advances in noise-absorbing materials and noise-cancelling technologies make the sound of silence — in cities — a reality, reducing stress and improving sleep.



MEGATREND
Materials Revolution

TRENDS
New Materials
Urban Design

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Automotive, Aerospace & Aviation
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Utilities
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WHY IT MATTERS TODAY

Noise that comes from aircraft, aeroplanes or construction work can become unbearable for people who live in cities. The urban population has been growing steadily with more people choosing to reside in cities than rural areas. More than 50% of the world's population resides in cities today, and this figure is expected to increase to 68% by 2050.[221]

A United Nations report recommends a permissible noise level for commercial areas with traffic of 70 decibels (dB). Prolonged noise at this level can cause hearing loss. The noisiest cities, all in Asia, are:[222]

1 Dhaka (Bangladesh) – 119 dB
2 Moradabad (India) – 114 dB
3 Islamabad (Pakistan) – 105 dB
4 Rajshahi (Bangladesh) – 103 dB
5 Ho Chi Minh City (Vietnam) – 103 dB

In the Middle East and North Africa (MENA) region the noisiest city is Damascus, Syria, at 94 dB.[223]

The World Health Organization recommends maintaining environmental noise below 70 dB over 24-hour periods to prevent noise-induced hearing loss.[224] For an 8-hour workday, 85–90 dB is judged to be an acceptable level of noise.[225]

Sleep can be affected by 30 dB, but busy roads emit noise at 70 dB and subways at 90 dB, while aeroplane take-offs register at 100 dB.[226] The major transformation in mobility from the increased use of electric vehicles is expected to have a positive impact on noise levels, since electric vehicles are quieter than diesel and petrol ones; however, the overall impact is expected to be low, particularly at high speeds, where other factors come into play, such as tyre and wind noise.[227]

THE OPPORTUNITY

Noise pollution in urban areas and workplaces is a source of stress and fatigue.

Reducing noise pollution plays a role in improving quality of life,[228] and, while further research is needed to explore the effect of noise on cardiovascular health, research has shown that there is some evidence linking noise to increased risk of heart disease.[229]

New materials offer the possibility of creating more peaceful neighbourhoods. New road surfaces can absorb the sound that comes from traffic, or roadside noise-cancelling materials can block sounds from reaching nearby buildings. Noise-cancelling equipment can transform construction sites making urban building sites less disruptive, enabling construction to continue 24/7 even in residential areas. Inside homes and offices, people can adjust background noise levels up or down using smart materials with acoustic controls.

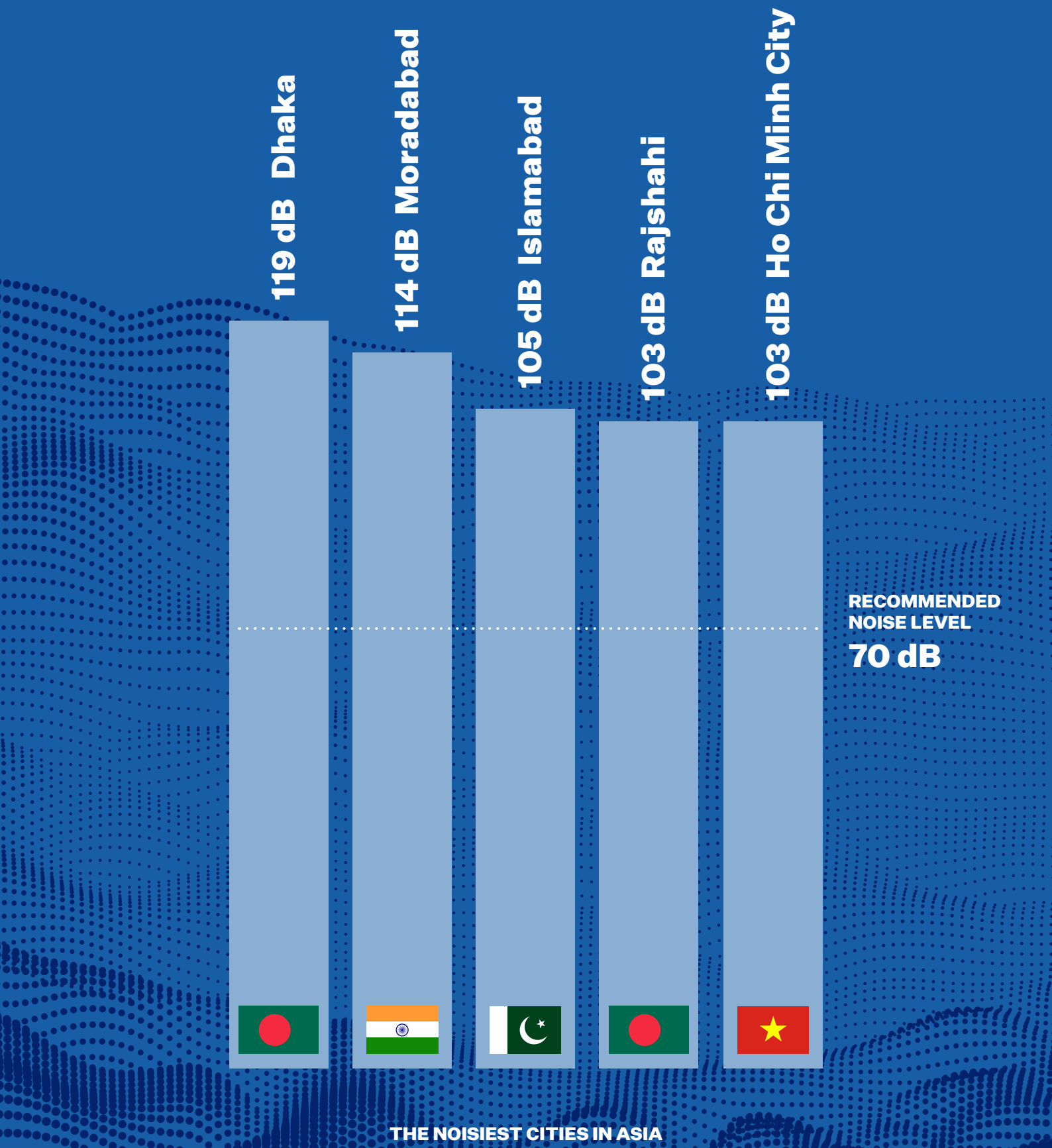
Scalable solutions for noise cancellation can be combined with innovative regulations to drive installations that significantly reduce noise levels to create quieter neighbourhoods.

BENEFITS

Less noise-related anxiety. Improved mental health and sleep quality.

RISKS

Increased investment in noise reduction does not keep pace with ever-increasing noise pollution.



THE NOISIEST CITIES IN ASIA