

CLEAR

THE

AIR

As cities from Delhi to London gasp for breath, product designers are coming up with novel answers to a growing public health emergency

By Elizabeth Choppin

IMAGE: ARJAN BENNING



There's no argument: UK cities have filthy air. Figures show that pollution causes over 40,000 early deaths per year, and at the start of 2017 a road in Brixton broke its annual nitrogen

dioxide limit within five measly days. Since then, experts have lambasted 'woefully inadequate' government plans to tackle the problem, and the High Court has twice ruled the UK's air-pollution crisis a violation of EU law. Cue Sadiq Khan's promise to get more diesel and petrol vehicles off London's roads and a raft of national targets and initiatives to reduce air pollution – now a certifiable 'national emergency' – by 2020.

It's not a UK-specific issue, of course. The World Health Organisation has said that 92 per cent of the global population live in places that exceed recommended limits – with cities such as Delhi, Beijing and Doha spewing out some of the dirtiest air on the planet. It is in the midst of this political hornets' nest that product designers have quietly entered the fray, coming up with their own ways to combat this colossal threat to public health. It's uncharted territory, and with that comes a mixed bag of ideas ranging from plausible and thought-provoking to the slightly absurd.

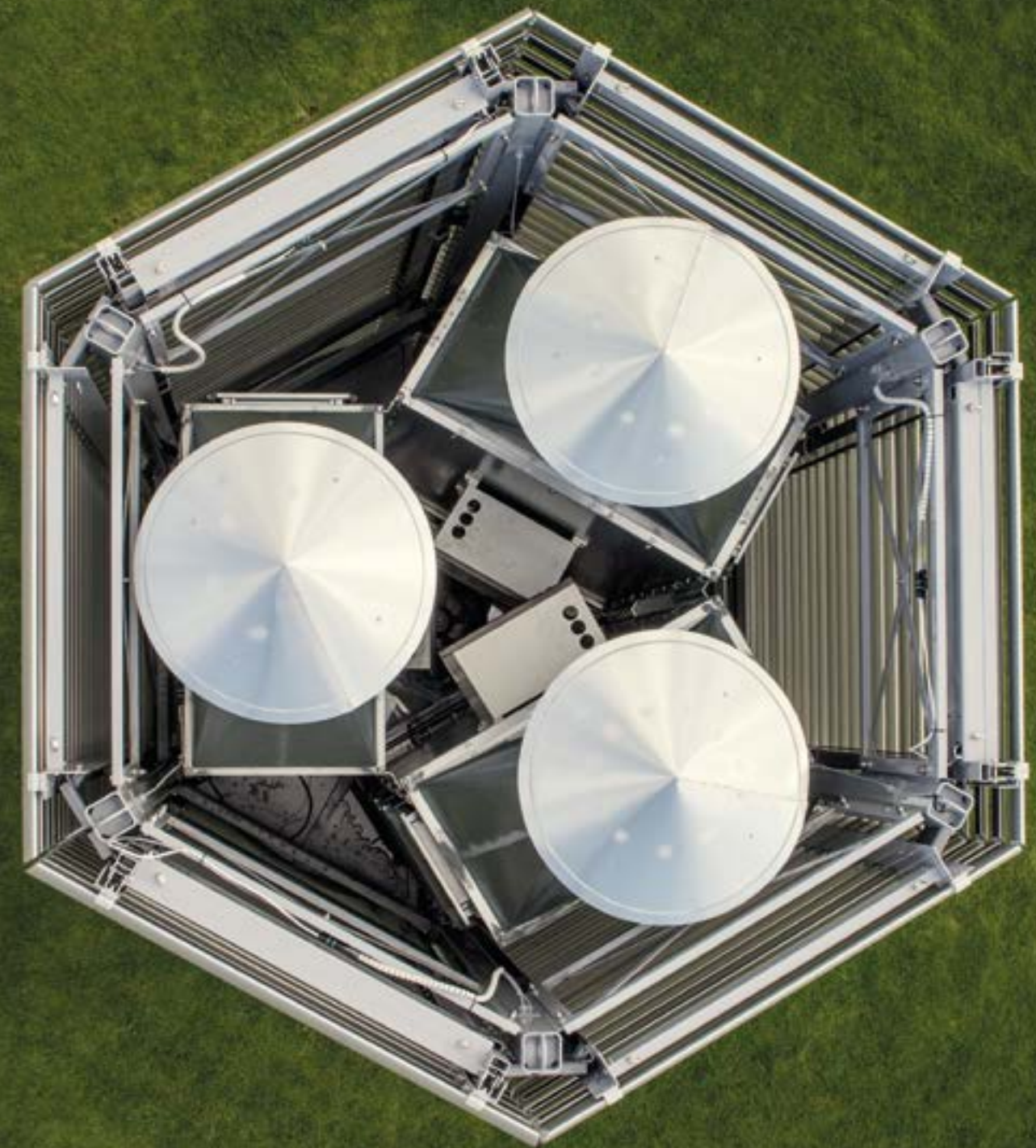
There is a lot to be encouraged by, however; at one end of the spectrum we have compelling, commercially viable products like Brizi, an air purifier and smog monitor for prams developed in collaboration with London-based Map Studio – known for design competence and sniffing out a good idea. There are experimental projects such as Julian Melchiorri's Bionic chandelier, which uses biomimicry to purify air; or Nikolas Bentel's range of clothing that changes colour when exposed to pollution. Perhaps less useful are the flower-printed air-pollution masks by Marcel Wanders at \$30 a pop, but there we are.

Arguably the most controversial ideas are from Dutch designer Daan Roosegaarde, whose Smog Free Project has aspirations to drastically cut air pollution in cities. This month his studio will launch a working prototype of Smog Free Bike in Beijing – this aims to purify polluted air through a mechanism on the handlebars, and then pumps it back towards other cyclists. Of the handful of anti-pollution designers out there, Roosegaarde certainly has the loftiest ambitions: 'When I tell my grandchildren about the Smog Free Project, I want them to ask, "what is smog?"' So goes the well-worn sound bite. ▶



PREVIOUS PAGE Smog particulates collected by Daan Roosegaarde in Beijing

ABOVE AND OPPOSITE The Smog Free Tower, which uses ionisation technology to clean air



IMAGES: HASY

Roosegaard's efforts began in 2015 with the Smog Free Tower, a 7m-high structure that works a bit like a giant vacuum cleaner, sucking in polluted air and removing particulates using ionisation technology – he says the tower can clean 30,000 cubic metres of air per hour. The initial aim is to have a localised effect on air quality in parks and public spaces, though the long-term goal is to scale up and make entire cities cleaner. He was struck with the idea while peering out from his Beijing hotel room several years ago, aghast at how smog obscured the view. The first self-funded Smog Free Tower was tested outside his Rotterdam studio, and before long another had been commissioned for a Beijing park, with more to follow in China, Columbia, Mexico, India and possibly the UK. 'We can be sad and blame government and do nothing, or we can design our way out of the problem. The Smog Free Tower and Bike are about that. I'm not a politician, I'm a designer. What can I do? I can design something,' he told me from the chaos of a Beijing street corner.

Needless to say, Roosegaard's pronouncements have been derided in some quarters and his critics point out that, really, his studio has only designed the metal-louvre casing that sits around the true innovation – air-purification technology developed over 17 years by scientist Bob Ursem, who collaborated on the project. There have also been doubts as to how effective something like the Smog Free Tower or Bike could be, and whether they confuse the issue. Frank Kelly, professor of environmental health at King's College London, has doubts: 'These types of things wouldn't be effective enough to make any sort of dent in the problem. The real solution is to reduce the emissions at source – to have cleaner and fewer vehicles in cities. The only good that all these devices can have is to raise awareness that we have to change our behaviour.'

To be fair, Roosegaard is the first to say his inventions won't solve pollution: 'Design cannot save the world but it can help. There are no shortcuts. This is a campaign as much as anything else.'

Supporters can even buy Smog Free Jewellery – rings and cuff links containing a bit of the black grime caught in the tower – via the studio's website.

While the effectiveness of oversized outdoor air purifiers remains to be seen, experts including Kelly are saying that evidence points to indoor units as a legitimate way to lessen the impact of pollutants, and the design world has responded. Start-ups such as New York-based Molekule and Livsdal, a Swedish company launched during London Design Festival last year, are producing a new breed of super-efficient air purifiers for the domestic market. While Molekule stands out for its sleek, minimal design, ▶



THIS PAGE Brizi air purifier and smog monitor for prams. The company has been approached by two major pram manufacturers

"Design cannot save the world but it can help. There are no shortcuts. This is a campaign as much as anything else"



ABOVE Livsdal in walnut – at 10kg, the unit is so large that it has to double as a sculptural piece of furniture

RIGHT Molekule uses nanotechnology to break down pollutants at a molecular level



"Growing consumer awareness will weed out the companies that aren't serious about what they're doing"

Livsdal's product is so powerful – and gigantic at 10kg – that it needs to double as a sculptural piece of furniture. Both use nanotechnology and are a departure from the moulded plastic forms seen up to now.

Livsdal founder Andreas Murray says he first became concerned with indoor air pollution in the late 1990s, but a lack of awareness meant it wasn't the right moment for his idea. Nearly 20 years later, the market was ripe, so Murray and his brother Tobias decided to partner with Camfil, a 50-year-old company that makes industrial-strength air filters. The resulting product is now available for the first time in Harrods, and its customisable mid-century Swedish styling is the cherry

on top of a seemingly powerful piece of kit. 'We decided to develop something that has the best filter capacity possible – that was the only goal – and what we've produced makes rooms 50 times cleaner,' Murray says. Livsdal purifiers can capture fine particle matter, but go further by using activated carbon to capture the tiny molecules – mostly from car emissions – that are among the trickiest to catch. Livsdal purifiers may be efficient but, at a price tag of £9,000, are not for the undecided. 'It's an immature industry,' says Murray. 'Growing consumer awareness will weed out the companies that aren't serious about what they're doing.'

The same is likely to be true for baby products, an industry that relies heavily on trusted brands. Map Studio's head, Jon Marshall, believes the Brizi air purifier for prams will become one of them, though it's not on the market quite yet. In October, it failed to raise funds via Kickstarter, but has now been approached by two major pram manufacturers. The battery-charged unit sits within a u-shaped pillow around the baby's head, creating a loop of clean air that cuts out ambient pollution around the face. This works in tandem with a monitor that is triggered in problem areas, and captures data to create a pollution map for parents so they can avoid certain routes, while sharing information with other parents via an app. Marshall is most excited about these mapping possibilities: 'That data is available for free and parents can use it to lobby local government for change. It'll take time to map on a local level but the hope is we can use it to address the larger problem.'

With campaigners set to drag the UK government to court for a third time for failing to go far enough with its clean air regulations, it seems a wise move for designers and businesses to invest in new technology that could help citizens on an individual level. Common sense suggests it's the next frontier of the industry; not just a culture shift toward electric vehicles, which is vital, but a new breed of product to battle the ill effects of the filthy air most of us are breathing every day. ♦

IMAGE: ALEXANDER CRISPIN