

# CLEAN AIR SURVEY



# Let's improve air quality together!

At IKEA, we want to have a positive impact on people and the planet. We've worked in a number of different ways so that everyone can live a better, healthier life in their homes. A priority is to give people access to clean air, because air pollution is one of the biggest health challenges of our time. This is a view supported by the European Union, United Nations and the World Bank.

For a number of years, we've been trying to reduce air pollution from our own operations by phasing out hazardous chemicals and tackling greenhouse gas emissions. We've also successfully lowered formaldehyde emissions and removed harmful flame-retardants from our products to improve indoor air quality.

The journey is on-going and we're always in search of new solutions to lower emissions. This survey was done to better understand how people around the world relate to air pollution and how it affects their daily life. By sharing our findings, we want to help raise awareness around air pollution and continue to contribute to better air in people's everyday life.

"In some places in the world, pollution is five times higher inside than outside. Air pollution isn't just a problem for less developed countries: it's a problem for big cities in general. One of the things I love about working for IKEA is that we can do something about it, by raising awareness, changing our products and how we work with our suppliers."

NANETTE WEISDAL, MANAGER SUSTAINABILITY RANGE, IKEA RANGE & SUPPLY



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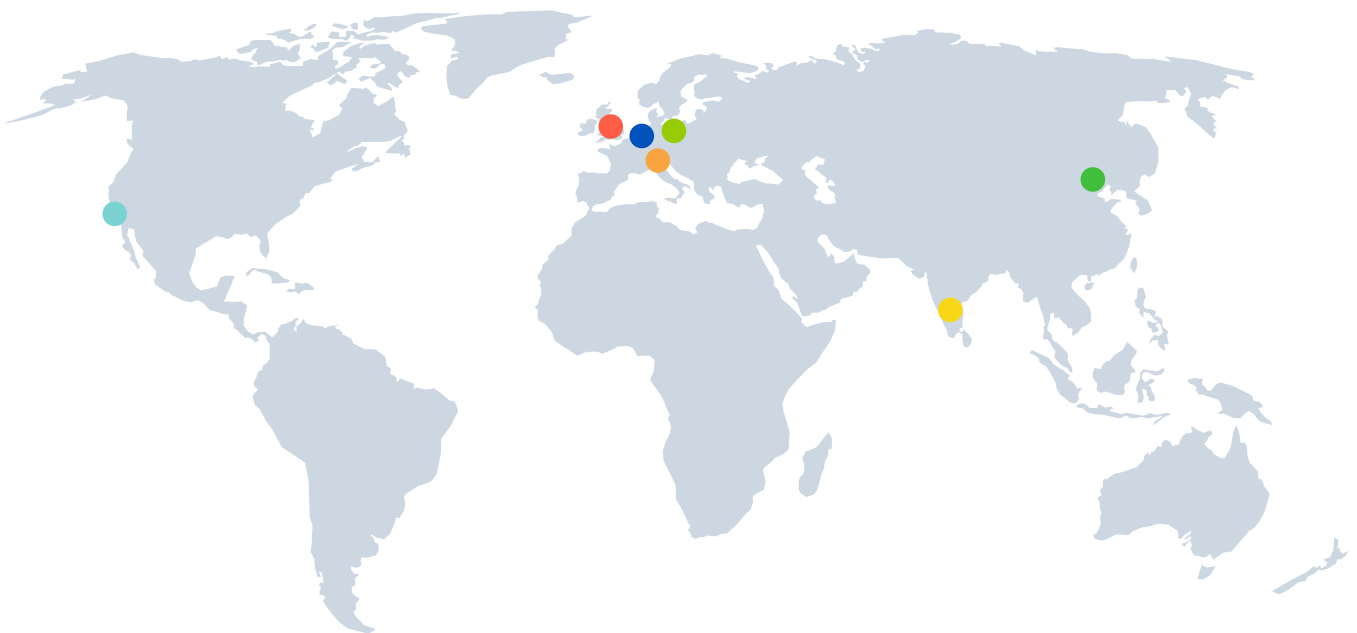


# Getting smart about clean air



# Getting smart about clean air

Since air pollution is the single largest environmental health risk globally, we needed to gain a better understanding of the issue. Getting smart about clean air would help us find opportunities to tackle the challenge ahead. So, we worked with cultural insights and innovation agency, Crowd DNA, to discover the needs, wants and dreams of people around the world when they think about clean air. We gave them sensors so they could see what the air quality was like in their environment and facts to help them understand pollution and its effect on their families. What they discovered was life-changing, but more of that later. Meanwhile, we spoke to experts to find out the extent of the issue.



## The cities we visited:

- **Beijing, China**
- **Manchester, UK**
- **Turin, Italy**
- **Los Angeles, US**
- **Bangalore, India**
- **Frankfurt, Germany**
- **Krakow, Poland**

We interviewed 42 people in seven countries, the youngest was aged 18 and the oldest was 70.

We visited 21 of these people in their homes (three per city) and gave them sensors so they could monitor air quality. We also asked them to show us around their local neighbourhoods so we could see how levels changed in different areas.

We talked to 18 air pollution specialists around the world including academics, sustainability managers and innovators who helped us understand the past, present and future possibilities of clean air for all.

# What is the air doing to my health?



Air is a human right and a necessity like food and water but it's one we take for granted. During your lifetime, you'll be exposed to about 250 million litres of air, weighing about 300,000 kg, nearly as much as a Boeing 747.

But all too often the air we breathe contains invisible pollutants that damage our health. Air pollution is the single largest environmental health risk globally, causing premature death and increasing the incidence of a wide range of diseases.

80% of people living in urban areas that monitor air pollution are exposed to air quality that exceed levels set by the World Health Organisation (WHO).

## ***4 need-to-know pollutants in the outside air***

### **PARTICULATE MATTER (PM)**

Particles including dust, pollen, mould, cement and soot that are suspended in the air. The finest ones pose the most risk because they can't be filtered by the nose, throat, or even air masks. Instead they make their way into the lungs, with the smallest entering the blood stream and damaging the heart and other organs, including the brain.

### **NITROGEN OXIDES (NO<sup>x</sup>)**

Nitrogen oxides react with other gases to form smog and acid rain, as well as being central to the formation of fine particles (PM) and ground level ozone - both of which are associated with adverse health effects.

### **OZONE (O<sup>3</sup>)**

Not to be confused with the ozone layer, this is most recognizable as city smog. It peaks in summertime because it's formed by a reaction between sunlight and emissions from traffic and industry, as well as volatile organic compounds (VOCs) that are found in many products we use at home. It can cause breathing problems, trigger asthma, cause lung disease and reduce lung function. In 2014, the European Environmental Agency (EEA) found that 96% of the urban population in Europe had been exposed to ozone levels exceeding the guidelines set by WHO.

### **SULPHUR DIOXIDE (SO<sup>2</sup>)**

Colourless gas with a sharp odour which is released by burning fossil fuels. Exposure can impact lung function, irritate the eyes, aggravate asthma and chronic bronchitis. Hospital admissions for cardiac disease and mortality increase on days with higher SO<sup>2</sup> levels.



# How healthy is the air in my home?

WHO estimates that 4.3 million people a year die prematurely from illness attributable to the household air pollution caused by the inefficient use of solid fuels for cooking and heating. Almost all of these are in low to middle income countries. Deaths are caused by strokes, heart disease, lung cancer and infections like chronic bronchitis. In the developed world, being indoors does offer some protection against outdoor air pollution (although 25% can still get inside). However there are other nasty sources lurking inside, many of which aren't known about widely.

The indoor pollutant that scientists believe may be most harmful to human health is particles (PM). Particles are produced by both gas and electric burners, as well as cooking. The finest ones pose the most risk since they can enter the bloodstream and damage the heart and other organs, including the brain. Other indoor pollutants include nitrogen oxides - which are found in the fumes of any type of combustion, for instance gas cooking - and solvents like formaldehyde that slowly seep from plastics, paints and furnishings. These can irritate the skin, eyes, nose and throat, while high levels of exposure can cause cancers.

## ***4 need-to-know home pollutants***

### **PARTICULATE MATTER (PM)**

Produced by both gas and electric burners, as well as cooking. The finest particles pose the most risk since they can enter the bloodstream and damage organs.

### **CARBON MONOXIDE AND NITROGEN DIOXIDE**

Found in the fumes of any type of combustion, for instance fumes from stoves and open fires. Can irritate the lungs and reduce resistance to infection.

### **FORMALDEHYDE**

Can be present in everything from candles to furniture, air fresheners and bed linen. Formaldehyde can irritate the skin, eyes and nose and high exposure has been linked to cancer.

### **VOLATILE ORGANIC COMPOUNDS (VOCs)**

Present in everyday products like cleaning sprays, deodorants, paint and wood preservatives. VOCs start off as solid or liquid but evaporate into the air and have been linked to headaches, dizziness, memory loss, eye and respiratory irritation.

When determining health related consequences of exposure, there are three major factors to keep in mind: the pollutant concentration, the duration of the exposure and how often the exposure occurs. In fact, your home can contain quite a potent cocktail of pollutants when you add in household dust, pet fur, pollen, ozone from electrical appliances and the radioactive gas radon. However, there are things that can be done to improve air quality in the home.

"There are four main areas where IKEA could be influential. We can limit the health impact of the products we produce, we can influence people's indoor polluting behaviour, we can educate people about the impact of indoor air pollution, and we can help to create global common standards when it comes to air pollution."

ANNELISE LARSEN, LAWS AND STANDARDS SPECIALIST, IKEA RANGE & SUPPLY

# Keeping children healthy



## HOME RISKS

Across the world, children's health is particularly affected by poor air quality inside the home. In emerging markets, women and children traditionally gather around the fireplace, exposing them to high levels of solid fuel pollution. Elsewhere our homes can contain a toxic mix of chemicals from furniture, household cleaning products and sprays.

"Indoor air pollution is closely linked to the level and duration of exposure, the more you are inside the more it will impact you, that's why women and children, are effected most by indoor air pollution."

ANNELISE LARSEN, LAWS AND STANDARDS SPECIALIST, IKEA RANGE & SUPPLY

Children are also more susceptible to the effects of pollution because their lungs are still developing. Exposure to household air pollution almost doubles the risk for childhood pneumonia. In 2014, WHO attributed over half of deaths among under fives to acute lower respiratory infections due to particulate matter inhaled from indoor air pollution from household solid fuels.

## OUTSIDE RISKS

And the situation isn't any better when they go outside. Recent research has linked traffic-related air pollution with delayed brain development. This is a world problem: children are four times more likely to have significantly reduced lung function in adulthood if they live in an area that's highly polluted.

Added to this, exposure to outdoor air pollution during pregnancy or infancy can negatively impact neural development and cognitive capacities, which in turn can affect performance at school and later in life. Pollution has also been linked to affecting fertility and shortening life expectancy.

"The long-term effects of air pollution are that it shortens our life expectancy. What's more worrying however is that children are hugely affected in polluted areas. There are already studies to show that air pollution prevents proper lung growth and can hinder cognitive development, potentially leading to autism."

DR. IAN MUDWAY, LECTURER IN RESPIRATORY TOXICOLOGY, KING'S COLLEGE LONDON





# Tackling pollution, saving the planet

Improving air quality isn't just beneficial to people, it will also help the planet.

Pollution is damaging the environment and disrupting natural ecosystems on land and in the sea. It's reducing the growth rates of crops and changing the chemical balance of the sea, making it more acidic. Unsurprisingly climate change and air pollution are intertwined and as temperatures rise, the problems will increase.

"Climate change is closely related to air pollution, as temperatures rise the problems with polluted air will change and likely become more severe."

ANNELISE LARSEN, LAWS AND STANDARDS SPECIALIST, IKEA RANGE & SUPPLY

Pollution also has an economic impact as it impacts the planet and people, making both less productive and increasing costs in health and through reduced yields.

And it's the people who live in emerging markets who are more likely to live in environments adversely affected by air pollution. Coupled with other health, social and environmental stressors, such as poor housing, higher unemployment, unhealthier diet and increased levels of pre-existing disease, they have limited opportunities available to improve or escape their environments.

Air pollution is also affecting our cultural heritage, with significant buildings being damaged by emissions. A 2015 study in Rome found that 3600 items of cultural heritage made of limestone and 60 made of bronze are at risk of deterioration.

***Pollution is a little bit like giving up smoking: some of the health effects are reversible.***

By tackling air quality now, there's plenty of opportunity to increase the health of the planet, people and cultural heritage. While we can't undo all the damage, pollution is a little bit like giving up smoking: some of the health effects are reversible.



# The story of pollution around the world

Air pollution is not evenly distributed around the world. Of the seven places that we visited, India and China have been rapidly industrialised over the last few decades causing extreme outdoor air pollution. Many people here and, to a lesser extent Poland, still cook and heat their homes using solid fuels like wood and coal. As a result, inside air quality is also significantly worse than in other countries.



# India and China: the most polluted places in the world?



## INDIA

India has some of the most severe air pollution in the world, with none of the cities in the north meeting international air quality standards. A 2017 Greenpeace report estimated that air pollution kills more than 1 million people here each year and takes 3% off the country's GDP.

Roughly 100 million households cook and heat their homes using 'chullah' stoves. The burning wood and biomass result in a perpetual haze, even in rural areas. In urban areas, heavy traffic is contributing to pollution and many Indians suffer from irritated eyes, throat and nose.

**What's being done** The Indian Government has banned crop burning and fireworks in an effort to reduce the 'haze'.



## CHINA

A 2015 study found that air pollution is killing about 4,400 people in China every single day. Much of this can be attributed to burning coal for heating and cooking. A smog hangs over the Beijing-Tianjin-Hebei region where coal consumption is 30 times higher than the world's average. On top of this, car ownership has increased six times over the past decade, increasing smog-forming nitrogen oxide emissions by one-third.

**What's being done** China is making an effort to tackle pollution and is leading the world in renewable energy investment. It's also trying to double the low-carbon share of its energy to 20% by 2030. Over the past decade, sulphur dioxide emissions fell by one-third thanks to controls introduced by the power sector.

## How is the USA battling with air pollution?



Historically pollution has been a big problem in the USA thanks to industrialization, people moving to cities and heavy car use, with New York in particular suffering in the 1960s. Generally there's been a large improvement in air quality across the country. However the continued popularity of cars, mixed with smog created by hot weather conditions is responsible for many health complaints, particularly in LA.

**What's being done** The state of California is enforcing air quality targets and investing in environmental conservation to combat carbon dioxide emissions. However the new government is in a battle to repeal limits set on pollutants emitted by oil and gas wells by President Obama.

# How polluted is Europe?



## POLAND

Poland is Europe's most polluted country - 43,000 premature deaths a year are attributed to poor air quality. Krakow suffers most, with air in the city centre considered safe only one day per month. Pollution comes from coal being burned in homes and factories. Krakow sits in a valley near the industrial heartland of Silesia, and experiences much cross pollution.

**What's being done** Clean air activists are encouraging people to change their coal-burning heaters, with government support.



## ITALY

Poor air quality caused 84,400 premature deaths in 2012 – some of the highest in Europe. Pollution comes from high levels of car traffic and emissions from industrial plants, especially in the north.

**What's being done** Local governments have started to restrict the number of diesel cars allowed to travel on the roads during the day.



## GERMANY

Despite being a European leader in establishing a green infrastructure, Germany has almost as many premature deaths per capita due to air pollution as Italy. Most of the air quality issues come from the sizeable car industry. Limits on nitrogen oxide emissions set by the European Union are regularly breached on German roads.

**What's being done** The government has empowered local organisations to remove old diesel cars from the road.



## UK

Air pollution is dropping in Britain, although health officials estimate that it's still responsible for 40,000 premature deaths per year. London and Manchester are the most polluted cities, with the former regularly breaching toxic limits. Diesel vehicles are causing the biggest impact in urban areas.

**What's being done** NGOs have forced the government to reconsider its efforts to reduce air pollution so that it meets legal limits.



***"I thought bad pollution was something you could see."***

SOPHIE, UK

## **Air pollution is a hidden threat**

In our research we discovered that most people underestimate the threat of air pollution, simply because they can't see it. They assume that polluted air would look dirty, in the form of smog or black clouds. If the sky is blue then the air is assumed to be clean, and this makes them complacent. In reality, many of the most polluting gases are invisible.

***Most people underestimate the threat of air pollution, simply because they can't see it.***

"I had a naive view on good and bad air quality. I thought bad pollution was something you could see. I remember going on a flight to LA and seeing black smoke. I thought air pollution was something you got in very built up areas."

SOPHIE, UK

And because they can't see air pollution in their homes, they don't think it exists.

"What exactly is indoor air pollution? Deaths due to pollution from old paint, glue? Give me a break!"

CHINMAY, INDIA

***"I probably glossed over pollution because it wasn't my problem."***

JANET, UK



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## Why don't we care about air pollution?

In every country we visited, apart from China, people played down the impact of air pollution by comparing their own situation to somewhere else that seemed more polluted. This might be another city (like Beijing) or an event in the past, like the London 'pea-soupers' of 1950s. This behavioural bias is called anchoring, and it occurs when we base our decisions too heavily on a specific piece of information, rather than assessing everything equally.

"Society seems to only care about now and not so much the future. It's why we are this way with air quality now."

JASON, UK

Unless they experience breathing issues, the people we spoke to didn't think about the impact of air pollution on their health. It's seen as a future worry, something not something to bother with right now.

"I didn't think about air quality or read about it. I probably glossed over pollution because it wasn't my problem. It was someone else's problem. If it doesn't affect you directly then you're not interested."

JANET, UK

Itchy skin, breathing issues and red eyes were reported across all markets but these weren't considered urgent or long-term things to worry about. However, people felt differently in China because the signs of air pollution are more obvious. As a result, Chinese people tend to be more knowledgeable about the risks of poor air quality.

"You can see the air pollution every day. Previously the pollution in Beijing was so bad that when you went out it was foggy. The haze covered more than half of China, it was very, very serious."

XU XIAO, CHINA



## Air pollution in the home... really?



***Awareness about indoor air pollution is low.***



***"I try not to use aerosols."***

PEGGY, USA

We've seen that awareness about indoor air pollution is low, especially among people in the developed world we spoke to, who aren't cooking or heating their homes with smoky, open fires.

We also found a general preconception that air pollution happens outside, rather than inside, their homes.

"I don't think there's any pollution happening inside. I think it comes from the vehicles driving past the house and the nearby sewage and construction outside."

CHINMAY, INDIA

It doesn't help that media coverage focuses on the risks of outdoor pollution, like the recent diesel crisis. In fact, this encourages people to undervalue indoor pollution even more.

"I thought bad air was something you get in built up areas. I certainly didn't think you could get bad air inside your house."

SOPHIE, UK

One of the biggest causes of indoor air pollution is the presence of formaldehyde in household products. It's been used in everything from furniture to cleaning products, scented candles to bed linen, but most of the people we spoke to were unaware of the risks.

Formaldehyde is one of the most well-known volatile organic compounds or VOCs that are present in everyday products. These start off as solid or liquid but evaporate into the air and are found in cleaning sprays, deodorants and paint. We found that even if people were aware of the risks, they often opted for a cheaper product, ignoring long-term health consequences.

"I try not to use aerosols when I'm cleaning. As a consumer, I have to choose between food and school supplies for the kids or safe cleaning products."

PEGGY, USA





## Why air quality can be confusing

Our research found that we associate clean air with blue sky and the countryside, and air pollution with a busy, urban environment. Construction sites are seen as particularly polluting because you can see the dust.

"Whenever I see a dusty road which is still under construction, I cover my face with a hankie, as tight as possible. Or if having a shirt I'll just pull it over my nose to avoid the dust."

BHARAT, INDIA

We found that windy conditions symbolise clean air to people. Heat and still air can make it difficult to breathe, so these weather conditions are more readily associated with air pollution.

"You can feel there's no draft. It's just stale, stagnant air that's just going to get worse and worse and worse as the day goes on. And by the way, it was cool today, so imagine when it's a really hot day and your air is probably 20 degrees hotter down here. It's just horrible."

DOUGLAS, USA

***People  
cling to  
myths  
to make  
sense of air  
pollution.***

People cling to myths to make sense of air pollution. The most persistent one is that air pollution is only really dangerous if you can see it. As a consequence, they were shocked when we presented them with the following statistics about deaths from air pollution. 3 million people per year are killed prematurely from outdoor air pollution. Indoor pollution causes a further 4.3 million deaths.

# Hidden dangers in safe spaces

The people we spoke to were largely unaware of the dangers they face from pollution and the causes and effects of indoor pollution remain a mystery. We found that there are three spaces where they feel safe: at home, travelling and at work.



## AT HOME

People see their home as a safe haven. It's a place where they spend time with their family, particularly in the morning and evening. However, unless they open windows, they're breathing the same air repeatedly.

## AT WORK

Many of us spend much of the day sitting on a computer in an office, which heightens our exposure to pollution. Working in an enclosed space with lots of people means the same air is 'recycled' many times.

"I live in a city but I found out that the air inside is dirtier, that blew me away a bit. I sat down in the office and the AC was on. It explains sick building syndrome, all the stuff blowing through the air."

JASON, UK

## TRAVELLING

Cars feel like they're a safe space, but they're often not, especially if you're stuck in a traffic jam. People have a tendency to associate air pollution with heat, which makes them think that when the air con is on, the air is purer. In fact, most air cons just recycle dirty air.

"When I was inside the car with the AC on, I thought I was free from pollution, but I was wrong, the levels were really high. Even if the windows are closed, there's always some air getting circulated inside the car."

PRIYANKA, INDIA

***People may feel protected from the outside world but they're often in the worst place.***

"Air quality doesn't impact my day to day life I don't think, as I'm mainly indoors but I can imagine that people with lung diseases would suffer."

AYAN, UK

While using public transport is better for the environment because it reduces the number of cars on the road, travelling on a bus or a tram is no better for your health than being in a car. People may feel protected from the outside world but they're often in the worst place – the middle of a busy road.

Most people travel at rush hour, which increases the risk of being exposed to higher emissions. Consumers often have no choice but to walk or cycle. It's out of their control which can make them feel helpless.

"You have to go one way to school. I can't change that. It's really hard to avoid air pollution here as there's no countryside."

SOPHIE, UK



## Coping with air pollution

More people than ever before are living in urban areas. However because the countryside is associated with clean air, many people see living in the city as a compromise. But it's one they're willing to make for better access to jobs and opportunities. When they do recognise the threat of air pollution, it's seen as being too big to cope with, so it's often discounted.


"When I saw the statistics, it worried me at first, but then I felt powerless because there's not much I can do about it and my action is a drop in the ocean."

ALESSANDRO, ITALY

"Generally there's not much I can do about it, unfortunately. I'm doomed to this quality of air, given the fact that living and working downtown is easy. The thing that would considerably improve the air would be moving somewhere outside the city centre, but that would be complicated and cost too much."

BARTOSZ, POLAND

However, changing the way we talk about air can be really effective and it's important to give people opportunities to act. There are small changes that everyone can make which will have a big impact on air quality. Read more about this on page 28.

A photograph of a person riding a bicycle on a city street. The person is seen from behind, wearing a dark jacket and light blue jeans, with a bag slung over their shoulder. They are riding in a bike lane marked with a white bicycle symbol. Several cars are visible on the road, including a white car on the left and a green car in front of the cyclist. The image is slightly faded to allow text to be overlaid.

***Changing the way we talk about air can be really effective.***



# Disrupting people's view of clean air

"My home's my haven, it's where I spend most of my time and I was really surprised it wasn't as safe as I thought from pollution. In fact, it's a stronger form of pollution than outside!"

SOPHIE, UK



During our research we conducted a two-week experiment to disrupt people's ideas about air quality. In the first week we asked them about their views on pollution. In the second week we gave them a portable pollution sensor and an information pack about the reality of air pollution. They were instructed to take the monitor around with them in their daily lives, so they could see what was really

happening. While the tag doesn't measure all pollutants indoors and outdoors, it gave them an indication of the carbon monoxide levels in their environment by sending data to an app via Bluetooth in real-time. The data produced, coupled with the most up-to-date information on indoor and outdoor pollution was enough to change their views and behaviour.

"The statistics information provided by the team is really shocking... I would be more than happy to contribute my bit to reduce pollution to make this world breathe natural pure air..."

CHINTAN, INDIA

"This surprises me! I never thought about indoor air pollution especially electronics. Now I can do my bit with to try to reduce air pollution."

STEVEN, UK

"This terrifies me and makes me want to take action! I don't want the kids to grow up in a world like this!"

SOPHIE, UK

***"The fact that air is five times more polluted indoors than outdoors is just terrible!"***

MAJA, POLAND







***There's a need to educate people about the health risks of pollution in a clear and meaningful way.***



# What IKEA is doing to improve air quality

It's easy to say that we want to give people access to clean air, but what are we doing to reduce air pollution?

The good news is that we've been trying to improve air quality in the home and in the outside world for a while now and have made some impactful changes. We're doing this by lowering emissions from our products through constant material innovations, as well as reducing greenhouse gas emissions across our value chain – both in our own operations (stores, transports, etc.) and by working with our suppliers.



# Tackling air pollution in the home

Everything we make and sell is designed according to our Democratic Design philosophy, of which sustainability is one of the five core principles. So a new product's effect on air quality is a major consideration for us.

We're tackling air pollution in the home with an ongoing review of chemical emissions, active gas sources and innovations.

## CHEMICAL EMISSIONS

We use chemicals in our products for a variety of reasons like adding colour and texture, as a glue, or for protection (paint is an example of this).

Most chemicals are safe to use, but some pose health risks and pollute the air. We're committed to keeping our emissions to a minimum and are always looking into new ways of reducing these.

Over the last few years, we've phased out chemicals that are suspected of being harmful or causing allergic reactions. Our biggest push has been with formaldehydes. The IKEA limit value is well below the European limit level for individual wood-based materials. And our vision is that formaldehyde emission levels in wood based products will be reduced to the same level as natural wood.

Emissions from IKEA furniture are at an all-time low and most of our products fall well below legal requirements.

"We've already done a lot around formaldehyde emissions but not that much about reducing bad air that's already in a room. Cleaning air instead of reducing our emissions is an interesting field of innovation."

ANDREAS AHRENS, SUSTAINABILITY PROJECT LEADER,  
IKEA RANGE & SUPPLY





## GAS SOURCES

This is a relatively new area for us and one where product innovation is an ongoing priority.

## HOBBS

Because a large amount of indoor pollution comes from burning fuel to cook, our focus has been on lowering gas use in people's kitchens. We've made a major investment in reducing the price of induction hobs so that more people can afford this option. Our TILLREDA portable hob is 40% more energy efficient than other varieties and halves cooking time compared to conventional hobs.

## OTHER HOME APPLIANCES

Everyday objects (like toasters) produce CO<sub>2</sub> by burning residue materials (in this case breadcrumbs). We're looking at innovations to help us reduce these emissions too.

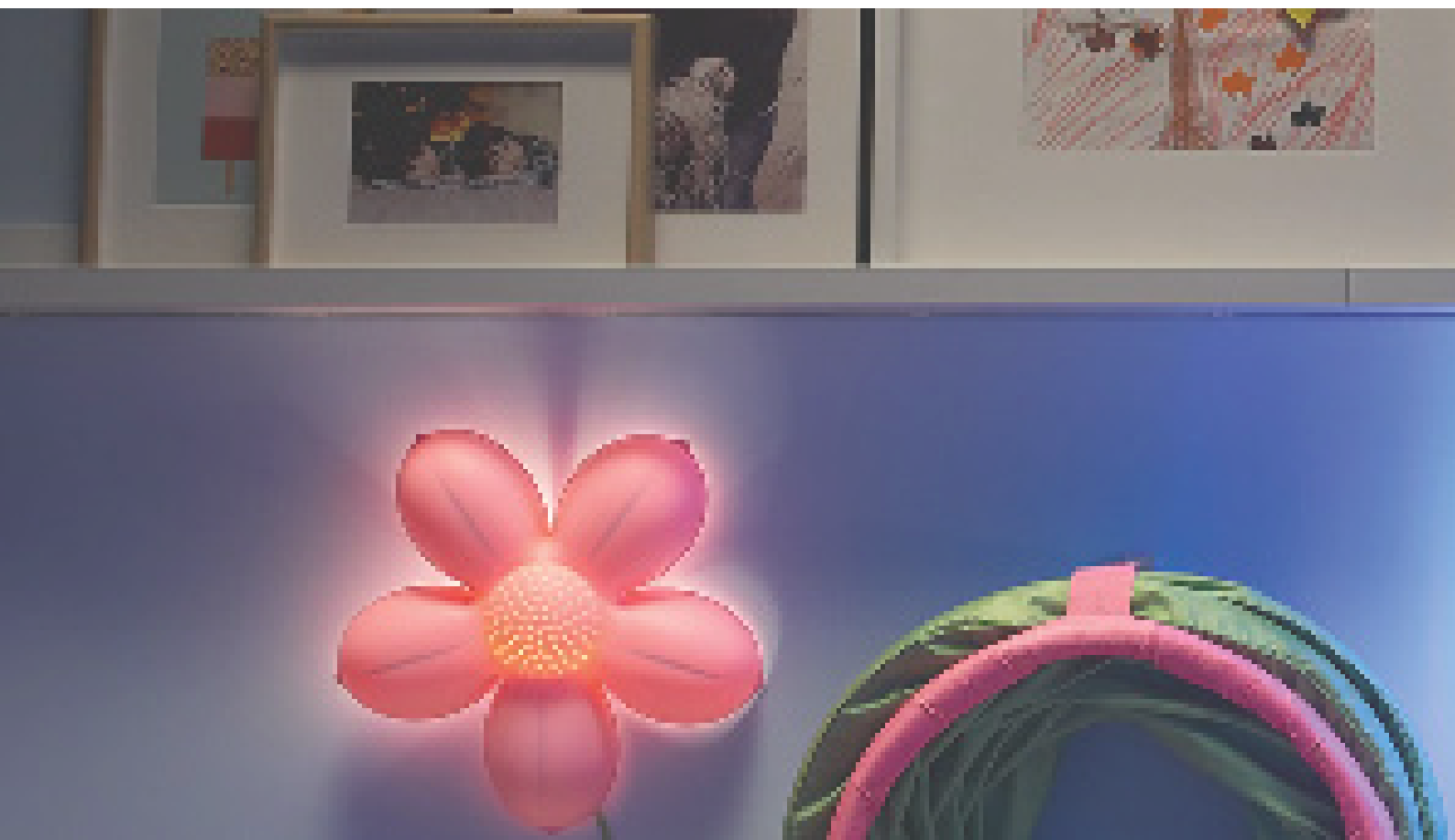
## CANDLES

To minimise the indoor air pollution from candles, we work closely together with researchers to ensure that we have the best materials available in our candles. However, in order to keep the indoor air as clean as possible, the most important thing is to burn candles in places that aren't draughty. Candles burning with a sooty flame (due to draught or too long wick) contributes to significantly increased levels of particles and carbon in the air.

## AIR PURIFICATION

The future of improving indoor air pollution is to clean air inside people's homes. Research is in its early stages, but we're collaborating with innovators to find new solutions.

***We're collaborating  
with innovators to find  
new air purification  
solutions.***





## Cleaner manufacturing, transport and stores

### SUPPLIERS

Most of the things that IKEA sells come from external suppliers, so it's important that we work with them to reduce their emissions. Our Supplier Code of Conduct, IWAY, contains targets relating to sustainability and air quality such as monitoring and improving air quality at the workplace, and handling chemicals and waste in a way that prevents emissions to air.

We encourage and enable our suppliers to become more energy efficient and reduce their greenhouse gas emissions by working closely with them to monitor and improve their performance. We are also working towards adding the reduction of air pollutants like SO<sup>2</sup> and ozone to IWAY in the next few years.

### IKEA INDUSTRY

IKEA Industry is our own in-house furniture supplier with 40 production units in 10 countries. To counteract air pollution, they have several initiatives in place including permits for biofuel boilers, heavy emissions control on wood incineration and legislation to minimise wood dust (which is a health risk for employees). By strictly adhering to the guidelines in their sustainability plan, they keep air pollution to a minimum.

***We encourage and enable our suppliers to reduce their emissions.***



## CLEAN AIR JOURNEYS

Most IKEA products have been on a journey from supplier, to distribution centre and finally to the store. The heavy transport that's used to get these products from place to place is inflicting major environmental damage, especially in terms of air pollution. Many of the trucks and ships that are used for transport run on diesel.

While we don't own these fleets, transport service providers have to abide by our IWAY code of conduct and reach sustainability targets. New data tools are being introduced which will be able to give us a clearer idea about how much pollution transportation is producing, so that we can tackle the issue.

***We look for suppliers who are innovating with alternative fuels.***

We also look for suppliers who are innovating with alternative fuels. All transport undertaken in Sweden and Norway is fuelled by hydrogenated vegetable oil, which not only reduces greenhouse gas emissions by 85% compared to diesel, but also significantly reduces air emissions

such as sulphur oxides, nitrogen oxides and particulate matter. In the US, our Tejon Distribution Centre have partnered with TransPower to introduce electric shunting trucks, which use new battery technology to propel heavy-duty vehicles while minimising carbon emissions.

Of course, the road isn't the only option for transporting products, and we're increasingly exploring alternatives like rail and sea. In 2016, 15% of our IKEA transport was shipped.







***As pioneers of flat pack furniture, we're reducing pollution with every cargo we pack.***

## **SMART PACKING**

One of the simplest and most effective ways of making transport more efficient and less polluting is packing more products into each truck or container. As pioneers of flat pack furniture, we're reducing pollution with every cargo we pack.

## **HOME DELIVERY**


People are increasingly choosing home deliveries. The downside to this is that air pollution from delivery is expected to quadruple in the next three years.

To tackle this, diesel-hybrid vans for customer delivery is being used in some areas and in Sweden there is an ongoing pilot with bike delivery for small products. Furthermore, INGKA Group rolled out a major strategy 2017, aiming to transition to electric vehicles or other zero emission transport options for customer deliveries and services.

"All delivery is outsourced and we want to set new industry standards. This electrification project is ambitious and I was expecting a lot of push back but everyone's been supportive and now it's happening! By 2020 we can expect major changes, by 2025 I expect most delivery to be running on electricity."

ANGELA HULTBERG, TRANSPORT SUSTAINABILITY MANAGER, INGKA GROUP





***INGKA Group  
aim to produce  
as much  
renewable  
energy as  
the energy  
consumed  
in their  
operations by  
2020.***

## **IKEA STORES**

It's important for us to provide people with healthy air inside our stores. IKEA is more than one company. In fact 11 different groups of companies own and operate our 412 stores in 49 countries under franchise agreements with Inter IKEA Systems. The biggest franchisee is INGKA Group, which runs 88% of our stores.

They've started making changes to improve the air quality inside their buildings by using water efficiently, reducing emissions and being smarter with waste, in an effort to make all of their buildings sustainable.

They've also set a goal to produce as much renewable energy as the energy consumed in their operations by 2020. This is quite a large job, since INGKA Group operates 362 of our stores and also several shopping centres and pick-up and order points all around the world.

## **AIR FILTERS**

INGKA Group monitor and check its in-store air filters regularly to ensure they're functioning efficiently. In the future, they'd like to be able to adapt the climate for local weather and air quality variation around the world.

In Sweden they're trialing software to regulate the in-store climate and hope to roll it out to all their stores soon. The software 'learns' when's the best time to cool or heat the building and when air needs to be ventilated or filtered.

## **OTHER INNOVATIONS**

INGKA Group is testing on-site fuel cells in some stores that produce energy in a more efficient way and reduce air pollution. They are also investing in kitchen ventilation by installing more efficient systems in in-store kitchens worldwide.

"We make sure all stores are in line with technical maintenance guidelines and have annual facility reviews. If they don't maintain these, then we create an action plan. We also apply the European Union energy sufficiency audit for big enterprises. When we extend a store, we shut it or work outside opening hours to minimise the dust and emissions in the rest of the building."

RICHARD LUNDGREN, TECHNICAL FACILITY MANAGER, INGKA GROUP



## Empowering costumers to reduce pollution

We're not just concerned about improving air quality within IKEA, we also want to encourage consumers to do the same – starting from when they visit our stores.

Of the billion consumer visits made to our stores last year, many would have driven and added to traffic in the city. We're looking to change the mode of transport that our customers use.

Although most of our sites are outside town centres, a vast majority of them are accessible by public transport. The retail organisations in Croatia and Romania are investigating opportunities for customers to travel to stores using hybrid buses. In the UK they're working with Sustrans, a charity that aims to make travel by foot, bike or public transport easier.

Many of our stores offer free electric vehicle charging. We're also investing in 'Pick-up and Order Points', where customers can choose to pick up products or have them delivered closer to their homes by low emission vehicles.

In some Swedish stores we've even removed parking spaces. Instead, we're offering customers rental bikes to take their products home.

***Many IKEA stores offer free electric vehicle charging.***



# 20 ways to improve the quality of your air

Improving air quality throughout our business is a priority for us, from how we work with suppliers to how we transport goods. However we also want to help people tackle pollution by empowering them with knowledge about clean air.

The good news is that there are several things you can do to improve the air in your environment. With these simple tips you can make a difference at home, on the go and in the office.



# 10 changes you can make at home

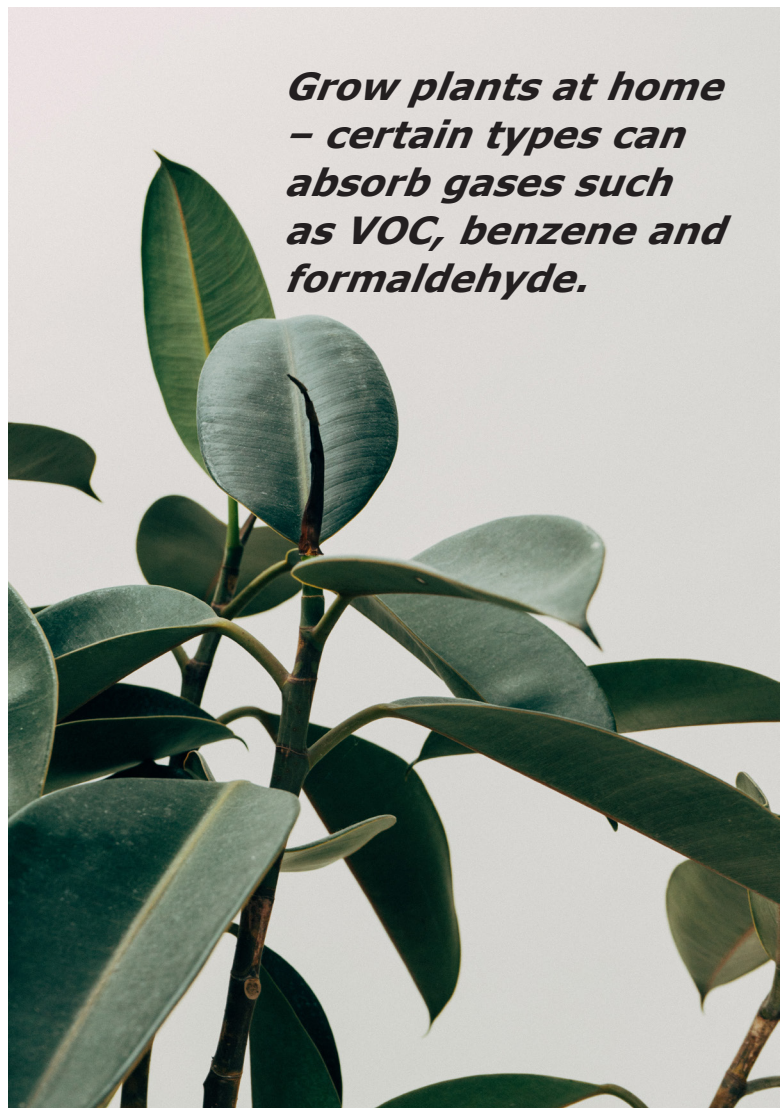


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- 1.** Turn off electrical devices when they're not being used. Making this switch will save energy and money too.
- 2.** Keep your home clean and free of dust. But make sure you use cleaning products free from formaldehyde and other air pollutants.
- 3.** Clean up your energy: consider buying from a renewable source or investing in solar panels.
- 4.** Grow plants at home - certain types can absorb gases such as volatile organic compounds, benzene and formaldehyde. And if you have a garden, plant trees.
- 5.** If possible, choose a good exhaust hood and when frying, place the frying pan as far back as possible. Put the toaster under the hood as well, when in use.

- 6.** Swap your gas stove for an induction hob, which are much cheaper than they used to be.
- 7.** In case you burn candles, try to keep them out of drafty areas. Burning candles near air vents, fans, or open windows will cause your candle to soot.
- 8.** Wear a jumper rather than turning on the heating when the temperature drops.
- 9.** Buy from companies that are reducing chemical use in their products. Formaldehyde can be found in everything from air fresheners, to cleaning products to some wooden furniture and polycotton bed linen.
- 10.** Unless you live in a very polluted area, air your home by opening windows when the outside air quality is best (often at night) and when you switch on electrical appliances.

***Grow plants at home – certain types can absorb gases such as VOC, benzene and formaldehyde.***





## 5 changes you can make when travelling

- 1.** If possible, make a difference by driving less, sharing lifts, using public transport, walking or cycling.
- 2.** Don't leave your engine running unnecessarily.
- 3.** If you live in a highly polluted area, seek out cleaner spaces to visit and quieter roads on which to travel.
- 4.** Avoid travelling at peak times to reduce congestion and exposure to pollutants.
- 5.** Open windows to circulate clean air when you're on quieter roads, close them at busy junctions and when queuing at traffic lights.



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## 5 changes you can make at work

- 1.** If possible, work flexi-hours, so you don't have to travel when everyone else does.
- 2.** Start a conversation about air quality with a colleague to create awareness.
- 3.** Turn off monitors and other electrical devices when not using them and air out meeting rooms.
- 4.** Take regular breaks from your screen.
- 5.** If you don't work in a highly polluted area, switch off the A/C and open windows to circulate the air. Avoid doing this during peak hours.



***Take regular breaks from your screen.***



*Avoid travelling at  
peak times to reduce  
congestion and  
exposure to pollutants.*





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quality together!**

