



DELHI BRIEFING PACK

GLOBAL PARTNER

IKEA Foundation


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United Nations
Climate Change

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CONTENTS



03 INTRODUCTION

3 – 4

05 THE DESIGN BRIEF

5 – 11

12 MAKE A DIFFERENCE

12 – 15

16 WHAT'S BEING DONE

16 – 18

19 KEEP IN MIND

19 – 21

THE GLOBAL CHALLENGE



WHAT DESIGN CAN DO TO PROVIDE CLEAN ENERGY FOR ALL

Fossil fuels are the biggest cause of climate change and are still our primary source of energy. Cities consume over two-thirds of the world's energy and contribute to more than 70% of global CO2 emissions. That's why What Design Can Do is focussing its second Climate Action Challenge on urban energy issues. Together with IKEA Foundation and many local partners we invite designers and creative entrepreneurs to rethink how we produce, distribute and use energy in our cities. Globally, carbon footprints could be further cut by favouring other forms of clean transport powered by and for people: walking, cycling and mass transit.

Everyone in the world should have access to enough energy to live a comfortable life, with access to clean water, nutritious food, shelter, healthcare, education and economic opportunities.

Many in the world have this, but at the cost of the climate. We need to end our reliance on fossil fuels, while also ending energy poverty by providing access to reliable and affordable energy to everyone.

To achieve this, we need to generate more energy overall, and it needs to be clean and green – meaning, renewable, passive, kinetic, anything but fossil fuels. We will also need to use energy more wisely: more efficiently, and with less waste. We have to think differently about how we source our energy and how we use it.

FIVE CITIES CHALLENGE YOU!



Cities, home to more than 50 percent of the global population, consume the majority of the global primary energy supply – and a lot of that still comes from fossil fuels. At the same time, cities emit 70 percent of the world's carbon—and that's likely even more when consumption-based emissions are accounted for.

Cities therefore offer a huge opportunity to transform the way we generate and use energy: to end dependence on fossil fuels, radically expand usage of renewable energy, conserve energy and secure clean energy for all.

We have worked closely with researchers, experts and designers in 5 globally influential cities to craft locally specific challenges informed by real stories, global key issues and local design capacity.

Across São Paulo, Mexico City, Delhi, Nairobi and Amsterdam we found that key elements of sustainable urban energy systems include clean and energy efficient transportation, waste management, building practices, food supply chains and public spaces.

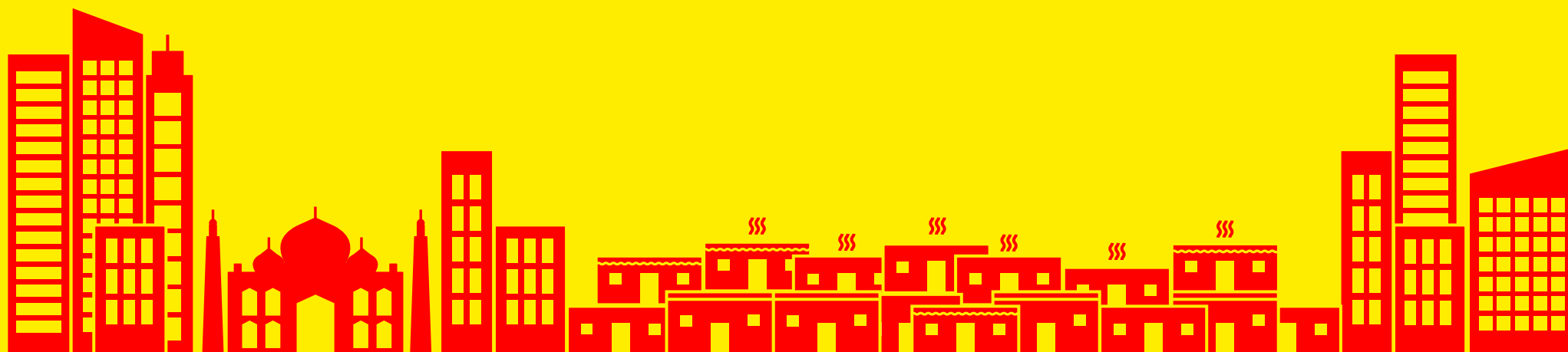
We would like to mobilise the power of both local and global creative communities to take on the challenges in these 5 cities. Designers and creative thinkers from all over the world are encouraged to apply. So even if you don't live in one of the 5 cities, you can still make a difference!

THE DESIGN BRIEF

HOW CAN WE PROMOTE CLEAN AND GREEN BUILDING IN DELHI?

As a result of unfettered development, heavily subsidised electricity, and poorly designed, heat-trapping buildings, households and workplaces in Delhi NCR are energy guzzlers. The city consumes more electricity than all other major Indian cities combined.

The race to build in Delhi NCR has left sustainability by the wayside. We're calling on all creatives to help Delhiites adopt (and demand!) greener energy habits, products and services for their homes and workplaces, drawing on a rich mix of traditional practices and modern technology.





GLOBAL CLEAN BUILDING ISSUES



The world is urbanising: by 2050, more than two-thirds of the global population will live in cities. Buildings currently account for nearly half of greenhouse gas emissions in many big cities.

Growing population and rapid growth in purchasing power in emerging economies and many developing countries, means that energy demand in buildings could increase by 50% by 2050.

With global floor area in buildings expected to double to more than 415 billion square metres (m²) by 2050, reducing the energy used to heat, cool and light buildings is a crucial step towards lowering emissions and easing the transition to clean energy in any city.

DELHI'S BUILDING PROBLEM



SWELLING POPULATION

In Delhi NCR, a city with limited public budget and low private incomes, the need to build fast to serve rapidly swelling populations results in haphazard urban planning, with both commercial buildings and poorly-served informal settlements mushrooming without much consideration for sustainability.

Commercial and residential buildings account for most of Indian cities' energy consumption, through heating, ventilation, air-conditioning, hot water heating, interior and exterior lighting, electrical power and appliances. In Delhi NCR, both the number of buildings and their energy consumption are increasing: three-quarters of commercial and high-rise buildings that will exist by 2030 are yet to be built, while new office spaces, IT offices and parks, data centres, hospitals, hotels, retail malls and high rise residential buildings are all becoming more energy-intensive, with more cooling and IT services.

RISING DEMAND

If today's policy trends are followed, India's building thermal energy demand will grow by almost 700% by 2050 compared to 2005 levels and the associated CO2 emissions are likely to increase tenfold (1.1 Gt). Delhi's generous subsidies also encourage excessive use of energy.

What's more, that only covers energy demand for buildings while in use; construction also constitutes 22% of India's carbon emissions. With a housing shortage in India and the need to rehouse survivors of increasingly common natural disasters, total emissions from construction are expected to double in the next 20 years.

DELHI'S BUILDING PROBLEM



But in the rush to build affordable housing — much needed in a city where millions live in poverty in informal settlements with no access to electricity or sanitation — the sustainability of homes is low on the agenda. While traditional Indian interior design allowed for rooms to be naturally cooled, through the use of features such as *jali* (intricate metal grills in the walls) and water-soaked khus (hanging curtains made of plant fibres), current construction practices ignore traditional knowledge, bulldozing through measures that run counter to how traditional systems work, and which ramp up energy demand.

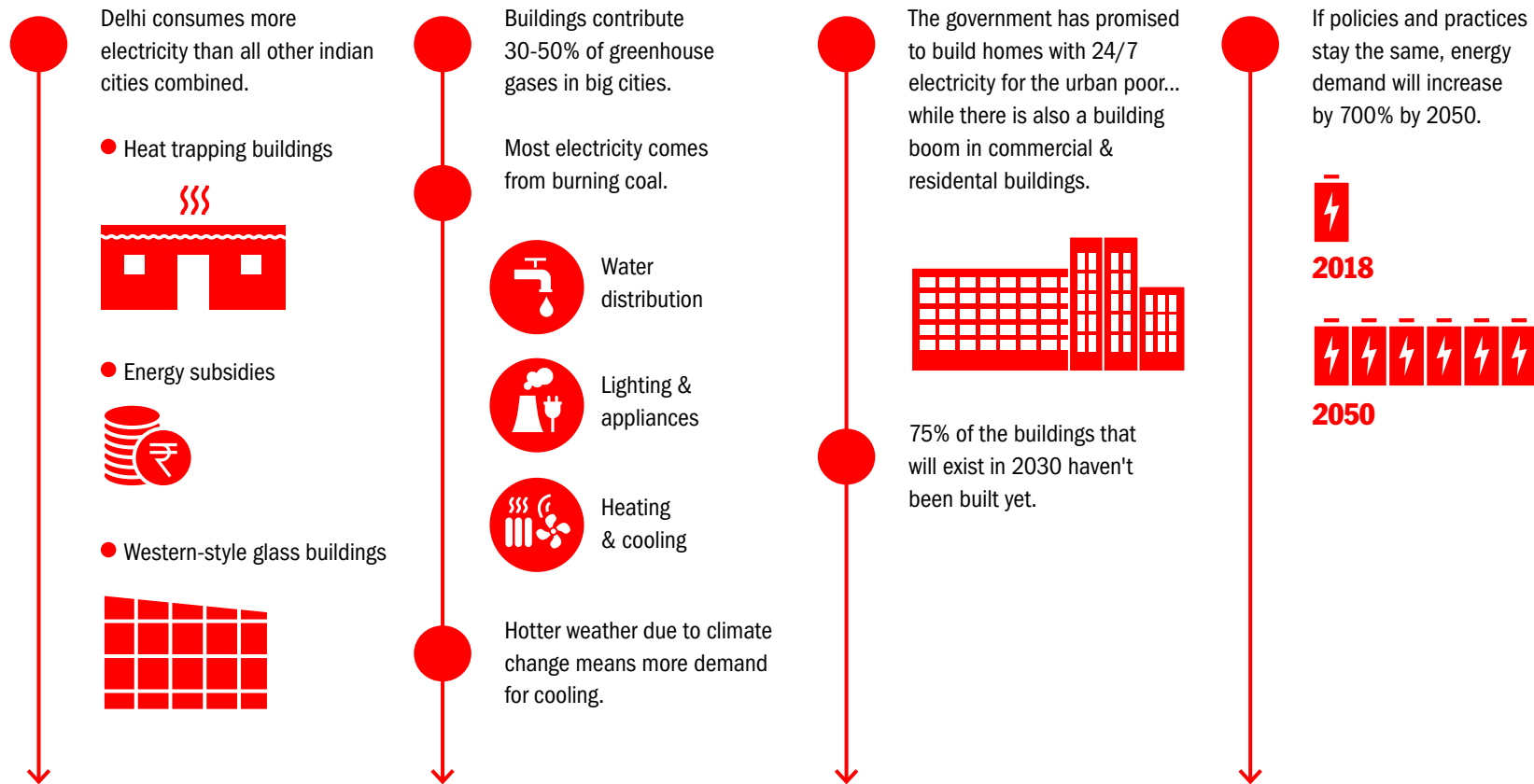
AIR CONDITIONING

Most buildings are now built without good ventilation, meaning that they must be air-conditioned, rather than passively cooled. Many commercial buildings in Delhi NCR being built have glass facades, which are not suited to the hot climate, as they bake the interiors in summer.

With Delhi's brutal summers getting even hotter due to climate change, air conditioning usage is soaring, making up almost a third of electricity usage during the summer and almost 60% of Delhi's peak electricity demand. Since living without some sort of cooling can be not only painful but lethal, air conditioning is seen as a basic necessity by those who can afford it, and something to aspire to for those who cannot.

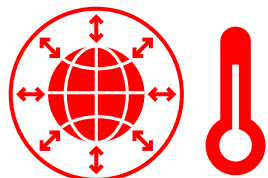
But air conditioners aren't good for the city: they spew hot air outside, contributing to higher urban temperatures and 'heat islands', encouraging people to turn up their air conditioners even more. Other building practices, such as cutting down trees to build homes and highways, heat up the city even more.

DELHI CLIMATE / BUILDING PROBLEMS

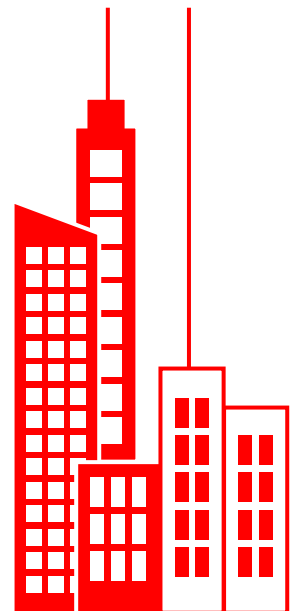


**METROPOLITAN
POPULATION:
46.7 MILLION**

**POPULATION:
21.7 MILLION**



IN DELHI BUILDINGS ARE THE MAIN SOURCE OF CARBON EMISSIONS, WHICH CONTRIBUTE TO CLIMATE CHANGE



**“CITIES THAT LEAD ON CLIMATE,
LEAD ON BUILDINGS.”**

**— BILL DE BLASIO,
NEW YORK CITY MAYOR**

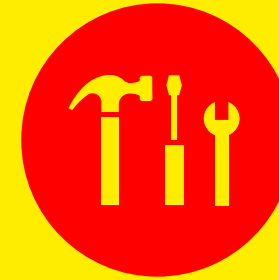


WHERE DESIGN CAN MAKE A DIFFERENCE



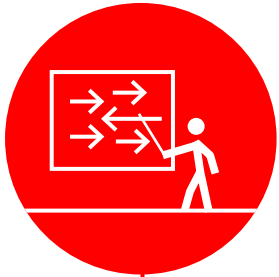
Millions of Delhi residents live in energy poverty in informal settlements with unreliable or unregulated access to electricity. The government has pledged to provide every urban poor household with a new home equipped with 24/7 electricity. But in the rush to construct 20 million of such homes, sustainable planning principles are unlikely to be a priority. The design community can make it one.

Consider promoting or creating passive building practices to reduce energy use, such as natural ventilation and shade for cooling, and use of sunlight for light and heating. Look into creating a service for local energy generation (such as rooftop solar) that is affordable and easily maintained. Create products and services that harness DIY ingenuity to reduce energy consumption and get jobs done without electricity or fuel.



Cultivate a movement calling for more sustainable building codes and practices. Imagine ways of building that draw on a rich mix of traditional practices and modern technology, in harmony with Delhi's (changing) climate and culture.

WHERE DESIGN CAN MAKE A DIFFERENCE



A CAMPAIGN TO ENCOURAGE MORE ENERGY-EFFICIENT BEHAVIOURS

Delhiites use a lot of energy in their homes and workplaces due to liberal subsidies, but changing behaviour could reduce consumption.



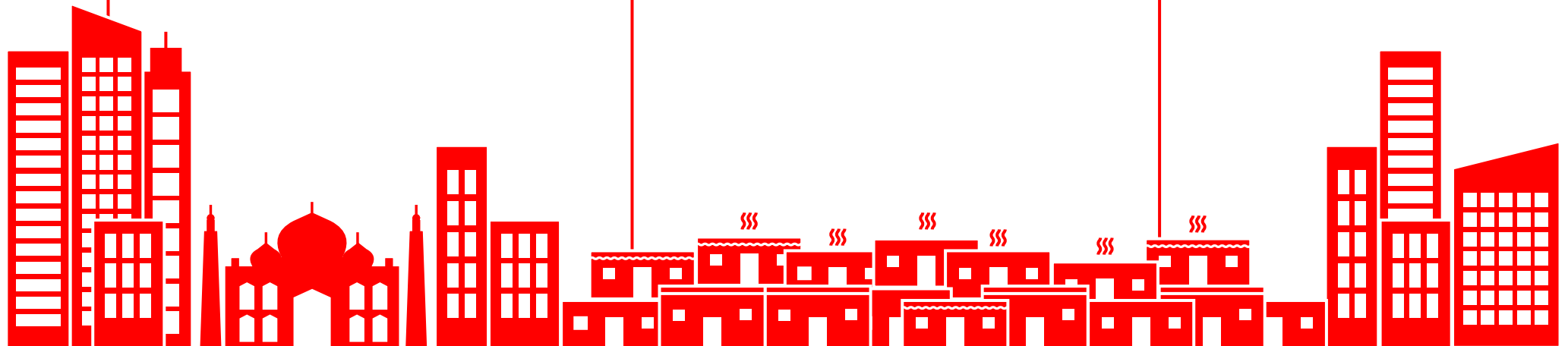
AN ALTERNATIVE TO AIR CONDITIONING, OR DESIGN A CAMPAIGN TO POPULARISE EXISTING ALTERNATIVES

Consider cross-ventilation or interpreting traditional architectural elements such as courtyards, wind towers, roof terraces and jali.



PRODUCTS AND SERVICES THAT LEVERAGE INDIA'S RICH TRADITIONS IN LIVING SUSTAINABLY

Consider a campaign, product or service that highlights, celebrates or scales traditional, energy-efficient design practices and the skills of those with relevant knowledge.



INTRODUCTION

THE BRIEF

MAKE A DIFFERENCE

WHAT'S BEING DONE

KEEP IN MIND

WHERE DESIGN CAN MAKE A DIFFERENCE



A CAMPAIGN THAT ENABLES PEOPLE TO DEMAND MORE SUSTAINABLE DESIGN, OR EVEN RENEWABLE ENERGY INSTALLATIONS

Construction and building practices often seem to be beyond the control of citizens, but a groundswell of popular support can change both policies and practices.



A SERVICE OR SYSTEM THAT HELPS PEOPLE LEAPFROG STRAIGHT TO CLEAN ENERGY

Help those currently in energy poverty bypass fossil fuels and jump straight to a cleaner, post fossil way of life.



A SERVICE TO SCALE EXISTING RENEWABLE ENERGY TECHNOLOGY ON BUILDINGS

Take into account the social, financial and cultural barriers to adoption and learn from promising existing green products and services.



INITIATIVES THAT FOSTER DIY INGENUITY IN DELHI'S INFORMAL SETTLEMENTS

Think about a service or product that could harness local creativity to help generate and conserve energy, or make energy usage more efficient.



“FOR PUBLIC MOBILISATION, I DON’T CARE IF PEOPLE UNDERSTAND CLIMATE CHANGE, THEY JUST NEED TO KNOW WHERE EMISSIONS COME FROM. JARGON WILL PUT EVERYONE OFF. FOR OUR CAMPAIGN, TALKING ABOUT AIR POLLUTION, A SERIOUS AND VISCERAL PROBLEM, IS A VERY EFFECTIVE NARRATIVE THAT CAN BRING PEOPLE TO THINK ABOUT SOLUTIONS. RATHER THAN TALKING ABOUT CLIMATE SCIENCE, IT’S ABOUT REFRAMING IT TO SOMETHING THAT IS CLOSER TO PEOPLE.”

**– REECHA UPADHYAY,
CAMPAIGNS DIRECTOR FOR PURPOSE IN DELHI**

WHAT'S BEING DONE



India's government is trying to simultaneously fulfil its citizens' energy needs while trying to limit the growth of CO2 emissions. The country has committed to increasing renewable energy to 175 GW by 2022, including 100 GW of solar energy capacity, of which 40 GW would be rooftop solar panels.

Not without challenges, the local government is also trying to push a solar policy to encourage every building and home to install solar panels and benefit from net-metering.

But while the government is promoting greater use of renewable technologies such as solar and wind, it is also focusing on increasing efficiency in coal, a fuel upon which India is still heavily dependent. Experts predict that renewable capacity will only fulfil a fifth of energy demand, and even when that is supplemented by hydropower and nuclear, coal will still make up 50% of energy supply in 25 years.

The government is making efforts to increase efficiency through policies and initiatives stemming from the Energy Conservation Act 2001. Some of these measures include increasing efficiency for household lighting and commercial buildings and introducing standards and better labeling of appliances.

One successful campaign that the government led was to provide gas to people living in energy poverty, who still cooked with wood, coal and other biomass because they could not afford other fuels. To fund these new gas connections, the government asked wealthier people to give up their gas subsidy.

Another successful campaign, named UJALA, sought to provide people with low-cost LED bulbs to encourage them to switch over from less efficient alternatives. The programme supplied over 300 million LED bulbs, saving 30 million tons of CO₂.

GET INSPIRED



LEARN FROM SOME INSPIRING LOCAL AND GLOBAL INNOVATORS WHO HAVE USED THE POWER OF DESIGN AND CREATIVITY TO PROMOTE GREEN URBAN BUILDING AND DWELLING:

SUSTAINABLE ARCHITECTURE / PLANNING

- Made in Earth – Bengaluru: Started by a team of four young architects, Made in Earth promotes low-impact architecture using locally available, natural building materials and building techniques that keep energy consumption to a minimum.
- Earthen pots insulation system by Mansi Shah.
- Puja Arti and Rohan Shenoy founded the Build-Inn service in August 2015 to help customers find sustainable and alternative materials for building homes.
- Biome environmental solutions – Bengaluru: Helmed by Chitra Vishwanath, an expert in sustainable architecture, Biome focuses on building in response to climate, using natural resources wisely and minimising waste streams:reuse.



LOW-CONSUMPTION ENERGY DEVICES

- Nexleaf Analytics: improved low-pollution cookstoves that monitor use and pay users for their carbon savings via carbon markets and investors elsewhere.
- With little more than plastic bottles of water, social entrepreneur Illac Diaz has found a new way to provide light to slums in the Philippines.
- A DIY air cooler made of just plastic bottles can cool rooms by up to 5 degrees.
- Kumar Shashwat wanted to do his bit and give back to nature. After graduating, he founded Development 2050 in 2016. The organisation was envisaged to provide sustainable environmental development for Delhi NCR and surrounding regions through green construction, rainwater harvesting, revival of micro-ecosystems, and more.

BEHAVIOUR CHANGE

- Japan's Cool Biz (and Super Cool Biz) campaign to set office air conditioning at 28 degrees to reduce electricity demand. Due to strong social pressure to dress formally, the campaign focused on making it socially acceptable to wear shorter trousers and no tie, thereby making the temperature bearable.
- Help Delhi Breathe, a public campaign to reduce air pollution, worked with rickshaw wallahs to spread information about air pollution and its effects to change behaviour.

DIFFERENCE

WHAT'S BEING DONE

KEEP IN MIND

KEEP IN MIND



MAKE IT FAIR

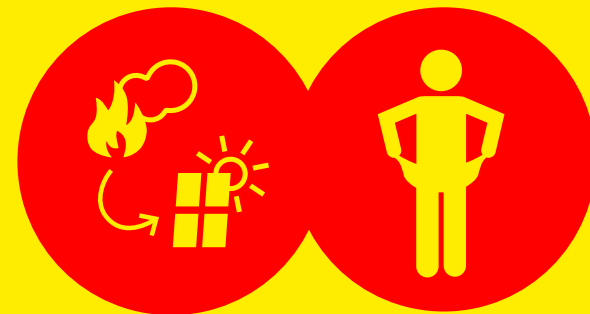
Almost a third of people in Delhi NCR live in energy poverty. That means they either have no access to energy infrastructure, cannot afford the prohibitive prices, or that they rely on stoves that pollute their homes.

Many people living in Delhi's slums use stoves called 'chulhas' that burn wood to cook, heat water and keep warm in the winter. Household pollution from such stoves is the main cause of health problems and death from air pollution in India. The burning of fuel such as wood and kerosene in homes is one of the top four contributors to fine particle pollution.

The intense heat in Delhi NCR, worsened by climate change, is becoming a serious public health issue. Living without some form of cooling causes countless people to get sick from heatstroke, food poisoning and many other illnesses. Keeping people at a healthy temperature, particularly indoors, is very important, but many people can't afford active cooling such as air conditioning or fans.

The extent of energy poverty in Delhi NCR means that talking about fossil fuels and climate change may not resonate. As India has rightly argued in climate negotiations, it's not very fair to talk about its responsibility to limit emissions when so many of its citizens still live in dire poverty without access to energy, while other developed countries have been emitting huge amounts of greenhouse gases for centuries.

But beyond the debate about whose responsibility it is, there are countless benefits to switching to clean energy, not least better public and urban health.



KEEP IN MIND

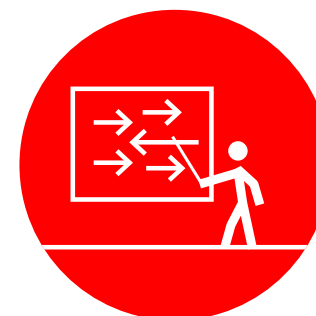


THINK LOCAL

India is an incredibly diverse country. It encompasses 17 out of the world's 29 climate zones, and has 21 agro-ecological zones, with 31 distinct food types and 155 soil types. And of course it has a mind-bogglingly rich diversity of languages and cultures. All this means that any solution for Delhi NCR must be rooted in the local context, rather than grafted from elsewhere in India or even overseas.

There is also growing awareness that design solutions should shun the extractive Western model of consumption, and integrate traditional Indian philosophy and practices that have a more respectful and realistic understanding of the environment and humanity's place in the cosmos. Climate-responsive design and architecture, use of local and sustainable materials and water harvesting are just some of the many sustainable practices that have been refined over thousands of years in India. Despite this wealth of knowledge, many modern practices ignore tradition in the quest for speed, efficiency and modernity. This has been at a huge detriment to the urban environment and climate.

Even Prime Minister Narendra Modi has said that development can be environmentally friendly and that 'it need not come at the cost of our green assets', showing that there is support for sustainability even at the top. It's time for designers to seize this opportunity and demonstrate how sustainability and development can go hand in hand.



DIVE DEEPER



- **INDIAN MINISTRY OF POWER'S ENERGY EFFICIENCY PAGE**

Outlines current schemes to promote energy conservations and efficiency across India.

- **DELHI'S ENERGY EFFICIENCY AND RENEWABLE ENERGY MANAGEMENT CENTRE**

Outlines current schemes to promote energy conservations and efficiency specifically in Delhi.

- **GLOBAL BUILDINGS PERFORMANCE NETWORK**

Provides information on global and national building performance in terms of energy.

- **HOW GREEN BUILDINGS CAN SAVE OUR CITIES**

An informative summary of the power of green building by National Geographic

- **THE ENERGY AND RESOURCES INSTITUTE**

A foundation working to accelerate the energy transition, has a lot of information on energy efficiency and green buildings.

- **SUMMARY OF THE CLEAN ENERGY JAM**

Made by What Design Can Do partners Quicksand and Unbox Festival, after the expert session in May 2018.

JOIN THE #CLEANENERGYCHALLENGE
WHATDESIGNCANDO.COM/CHALLENGE

DEADLINE FOR SUBMISSIONS:
5 DECEMBER 2018



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