

# #4 THE BRIEFINGS KIT



**IN PARTNERSHIP WITH:**

---

IKEA Foundation  


 **AUTODESK.**  
FOUNDATION

# CONTENTS

---

## 01 INTRODUCTION

3

## 02 COMMUNICATIONS

4 – 14

## 03 PRODUCTS & SPACES

15 – 25

## 04 SERVICES

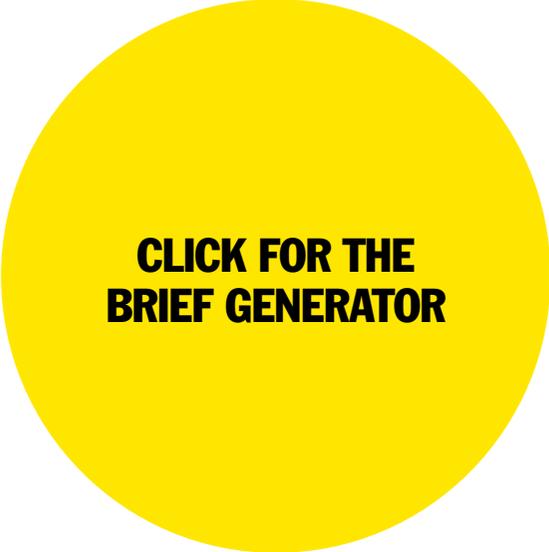
26 – 37

## 05 SYSTEMS

38 – 47

## THE BRIEFS

# INTRODUCTION



**CLICK FOR THE  
BRIEF GENERATOR**

This challenge offers a unique way of choosing a brief: a generator. Choose how you want to tackle a problem (with a design strategy) and then what you want to tackle, and finally where you want to do it – and hey presto, a customised brief is generated for you.

Why did we decide to offer a briefing generator? Well, with such a complex issue, we quickly realised that a handful of briefs wouldn't be enough.

Firstly, we wanted to make the challenge accessible and inspiring for all kinds of designers, from advertisers to architects. That meant we had to cater for designers who work at all different levels, from communications to products, services and systems.

Secondly, climate change affects everything in our life, from our water to food, energy and housing. We wanted to have these represented at every level of design.

And finally, we want to encourage designers from all over the world (think global) to design for their own backyards: the places they know best. For that, we had to make the briefs universal enough that they could be applied to anywhere.

## 01. DESIGN STRATEGY

# COMMUNICATIONS



## DESIGN STORIES TO HELP PEOPLE IMAGINE NEW WAYS OF LIVING AMIDST CLIMATE CHANGE

Designers are powerful storytellers. This communication skill is much needed to educate people about and help them imagine the changes they need to make in their lives to adapt to shortages or disasters caused by climate change.



# FOOD X COMMUNICATIONS

## WHAT CAN DESIGN DO TO INSPIRE CHANGE IN [LOCATION]'S EATING HABITS?

### THE CHALLENGE

Changes in the climate mean that food sources we are used to eating may no longer be available. Extremely high and low temperatures can destroy crops and kill livestock and marine life, while a higher incidence of pathogenic bacteria due to hot temperatures could make some foods more dangerous to eat. We need to learn to eat differently to avoid food shortages and famine.

### THE OPPORTUNITY

Create and deliver stories that build on real-life personal stories to show people how an alternative diet of 'climate-change-proof' foods can be even more delicious, convenient, affordable or healthy than their current diet. This could be achieved by educating consumers about biodiversity, ecosystems and food sources, possibly using local, traditional or indigenous knowledge.



## EXAMPLE

# TOMORROW'S MEATBALL: A VISUAL EXPLORATION OF FUTURE FOOD

“We used the meatball’s shape and size as a canvas for future foods scenarios, because we wanted to visualise complicated research in a simple, fun and familiar way. There’s hardly any culture that does not cook meatballs - from the Swedish meatball, to Italian/American spaghetti meatballs to spiced up Middle Eastern kofta,” says Kaave Pour from Space10.

“It’s quite difficult to picture that in the near future we will be eating insects or artificial meat. But, with the increasing demand for food, we need to start considering adding alternative ingredients to our daily menu. You could say that Tomorrow’s Meatball gets people a little more familiar with the unfamiliar.” - says Bas van de Poel, who was creative in residence at Space10, where he worked closely together with Space10-creative Kaave Pour to create the Tomorrow’s Meatball project.



[CLICK ON IMAGE TO VIEW CASE](#)



# ENERGY X COMMUNICATIONS

## WHAT CAN DESIGN DO TO INSPIRE PEOPLE TO COPE WITH ENERGY SHORTAGES OR BLACKOUTS IN [LOCATION] DUE TO CLIMATE CHANGE?

### THE CHALLENGE

Consequences of climate change such as extreme or unusual temperatures and natural disasters can reduce access to energy. For example, storms can damage powerlines, while floods can destroy firewood. High demand for energy during heatwaves and prolonged cold weather can also cause blackouts due to strain on the grid. In many cases, individuals are ill-equipped to cope without energy.

### THE OPPORTUNITY

Create and deliver stories that build on real-life personal stories to teach people how to cope with energy shortages while still fulfilling their daily needs. This could be done by raising awareness about how renewable technologies can be used in place of conventional energy sources, or by showing people how to use passive solutions involving ventilation, insulation and sunlight. You could also educate people on how to reduce and prioritise energy consumption.





# HOUSING X COMMUNICATIONS

## WHAT CAN DESIGN DO TO INSPIRE PEOPLE IN [LOCATION] TO ADOPT MORE RESILIENT FORMS OF HOUSING?

### THE CHALLENGE

Many people live in homes that will be damaged or destroyed by rising seas, storms, floods and heatwaves caused by climate change, possibly endangering their life. Many of them find it difficult to consider moving or significantly adapting their home due to financial, social, personal and cultural factors.

### THE OPPORTUNITY

Create and deliver stories that build on real-life personal stories that empower people to strengthen their own homes or relocate to avoid damage due to climate change. You could explore how to raise awareness about the need for relocation due to climate risk. This could be achieved by demonstrating the additional benefits of moving or adapting homes, such as higher quality of life or better health. It could also be achieved by educating people about how to adapt their homes using existing, affordable and accessible technologies.



## EXAMPLE

# ZARZALEJO EN TRANSICIÓN IS A TRANSITION TOWN GROUP IN SPAIN.

The group is convening people from across the community to reimagine and to dream the place they'd like Zarzalejo to be in the future. This project is based on ones they've previous done, like Oasis (which brings young people together to dream about the future and social transformation through practical activities), Zarzalejo Cuenta (a compilation of local history), and previous working groups from Zarzalejo in Transition (Food, Environment, Transport, Local Resources, Culture and so on).

Drawing on the many partnerships that the group have already created with local government and other progressive associations, the group are now expanding the future scenarios work to include a lot more people from the village, to create a tangible, real and sustainable vision of the future for Zarzalejo.



[CLICK ON IMAGE TO VIEW CASE](#)



# HEALTH X COMMUNICATIONS

## WHAT CAN DESIGN DO TO INSPIRE PEOPLE TO REDUCE THE HEALTH RISKS IN [LOCATION] CAUSED BY EXTREME WEATHER

### THE CHALLENGE

Higher temperatures will cause heat-related deaths and illnesses, and worsen air quality, causing respiratory and cardiovascular diseases. Burning conventional fuels also produces toxic air. Mosquitoes and ticks will also thrive in hotter weather, leading to a higher infection rate of malaria, dengue, and Lyme disease. Higher temperatures will also breed more pathogenic bacteria in food and water, leading to diarrhoea.

### THE OPPORTUNITY

Create and deliver stories that build on real-life personal stories that educate people about existing and accessible practices to prevent illness and infection. Think about the ways in which hygiene and sanitation practices have been spread and taught. Explore ways in which people can be empowered to live their life to the fullest without falling sick. If your region is not at risk from heat-related disease, consider how to combat air pollution from conventional energy sources.



## EXAMPLE

## TOKYO DISASTER PREPAREDNESS GUIDE

Tokyo Metropolitan Government recently made a disaster preparedness guide and dropped it through the letterbox of every single household in the city.

The guide, called Tokyo Bosai (disaster prevention) continues with practical tips and advice for how to prepare for and survive natural disasters such as earthquakes, typhoons and heavy rains and flooding.

Unlike most government communication on disaster prevention, it's beautifully designed, since it's a collaboration between design firm Nosigner and ad agency Dentsu. It's fun to read and has a cute rhino mascot to talk readers through (he is also the centre of an animated flip book at the corner of the pages.) The guide gives practical tips on how to stay safe and health in the aftermath of disasters.



CLICK ON IMAGE TO VIEW CASE

## EXAMPLE

# BRASILANDIA COMMUNITY HEALTH FAIR

A community in Brasilandia, a favela in Sao Paulo, started a Sustainable Health Fair to help people learn how to live better, how to manage stress, and connect them to health agencies.

More than 3,000 people attended the last fair. The activities included stretching classes, AIDS awareness, oral hygiene, walking and meditation, education on toxic plants and how to identify them, and campaigns about diseases such as dengue fever and rabies.



[CLICK ON IMAGE TO VIEW CASE](#)



# WATER X COMMUNICATIONS

## WHAT CAN DESIGN DO TO INSPIRE PEOPLE IN [LOCATION] CONSUME WATER MORE RESPONSIBLY?

### THE CHALLENGE

Climate change will cause fresh water shortages, sometimes due to insufficient rainfall, and sometimes due to a breakdown of centralised water utilities. Irresponsible consumption and unfair distribution in these circumstances leads to other consequences such as illness, death and conflict.

### THE OPPORTUNITY

Create and deliver stories that build on real-life personal stories to educate people on the impact of their water consumption. This could involve empowering them to store their own water. Consider leveraging indigenous, traditional and local knowledge to prioritise water consumption where it is needed, or leveraging existing technologies and methods for managing water.



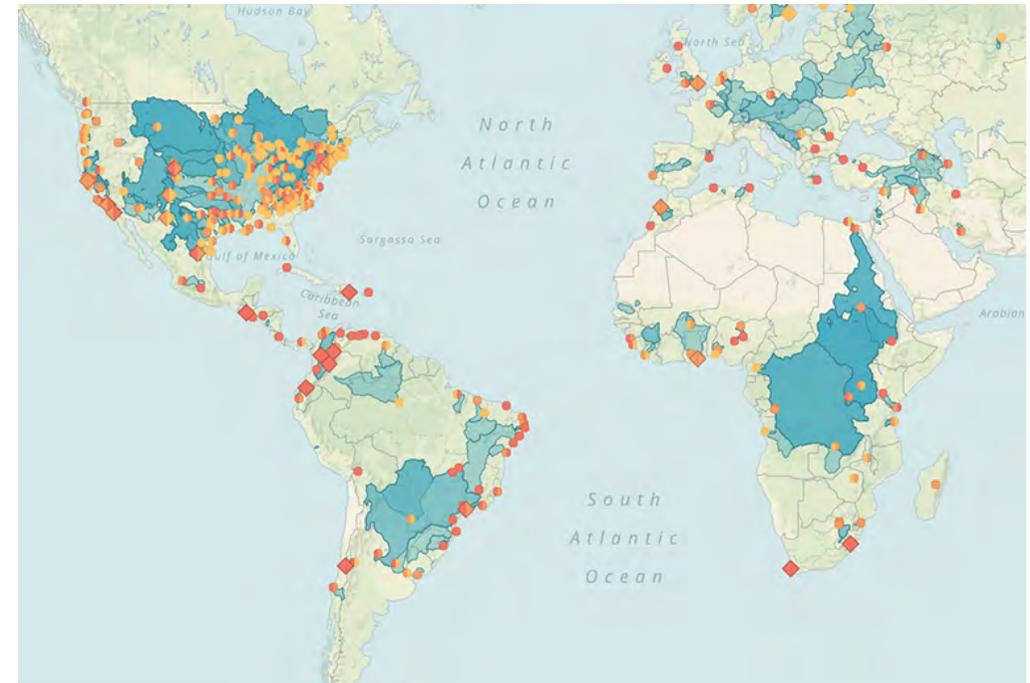
## EXAMPLE

# URBAN WATER BLUEPRINT BY STAMEN

Stamen, a provider of visualisation and analytics design, designed a fresh-water availability map to encourage water conservation. It uses a dataset from the Nature Conservancy and breaks down water resources by quality and quantity. It also includes nature-based solutions cities could use to make their water systems safer and more secure, including best practices for agriculture and reforestation.

The map covers 535 cities, of which 25 cities are explained in detail with detailed narratives and images to highlight the main message: that water conservation works.

On a city page, you can see the situation of that entire city's water resources with a few simple charts and colour-coded ratings. You can see, for example, that Jakarta's water supply is very stressed. You can also see that neighbouring cities – like Oakland and San Francisco – sometimes have very different water supplies and challenges.



[CLICK ON IMAGE TO VIEW CASE](#)



## 02. DESIGN STRATEGY

# PRODUCTS & SPACES



## DESIGN PRODUCTS AND ENVIRONMENTS THAT EMPOWER PEOPLE TO COPE WITH CLIMATE CHANGE

The objects, buildings and places designers create can strengthen or provoke people to take action. People need support to deal with the changes they will experience in their supply of water, food, and energy, and the threats to their home and their health. A product or environment can empower people to become more self-sufficient or resilient against the problems that climate forces upon them.





# FOOD X PRODUCTS & SPACES

## WHAT CAN DESIGN DO TO EMPOWER PEOPLE IN [LOCATION] TO PRODUCE FOOD IN A CHANGING CLIMATE?

### THE CHALLENGE

Changing temperatures, rainfall and unusual weather patterns makes it difficult to produce food as we have done in the past. Extreme temperatures make it difficult to grow crops, keep livestock healthy, and store food. The acidification and warming of the oceans threatens fish and other marine life that are part of our diets.

### THE OPPORTUNITY

Consider improving cropping, livestock and aquaculture practices to make them more resilient to climate change. This could involve new storage methods that can withstand unusual or extreme temperatures, or ways of protecting livestock and crops from temperature extremes and water shortages. Another option could be to grow more food locally to increase self-sufficiency and resilience.



## EXAMPLE

# A TRANSITION TOWN: POTAGER ALHAMBRA

A Transition Town in Brussels started a vegetable garden, Potager Alhambra, with 13 beds measuring 1m x 1m, which are each tended by a different neighbour. One of the aims behind the vegetable garden was to make people more aware of where their food comes from and bring them closer to it. Another aim was to encourage community. It worked: several of the people who founded the garden went on to be the key initiators of a community-led response to the refugee crisis.



[CLICK ON IMAGE TO VIEW CASE](#)





# ENERGY X PRODUCTS & SPACES

## WHAT CAN DESIGN DO TO EMPOWER PEOPLE IN [LOCATION]'S TO BECOME ENERGY INDEPENDENT?

### THE CHALLENGE

Relying on carbon-based energy sources such as oil, coal or firewood makes people vulnerable to the consequences of climate change. Power lines, energy infrastructure and energy sources such as firewood are damaged by storms and natural disasters, including floods. Water shortages can stop thermoelectric and hydropower electricity generation. Heatwaves are often accompanied by blackouts as the need for cooling puts a heavy strain on the power grid.

### THE OPPORTUNITY

Consider how to enable more people to generate and control their own energy supply. Think about scaling existing renewable technologies in a more affordable, accessible, convenient or attractive form. Ensure that such devices or systems can withstand extreme weather.





# HOUSING X PRODUCTS & SPACES

## WHAT CAN DESIGN DO TO PROVIDE AFFORDABLE DISASTER-PROOF HOUSING [LOCATION]?

### THE CHALLENGE

Climate change brings new weather conditions that most homes are not prepared for. Natural disasters such as floods or storms can damage or destroy homes, leaving many people homeless. Shelters are often inadequate and uncomfortable, partly because they are far away from the environments that people are used to.

### THE OPPORTUNITY

Consider creating affordable homes that safeguard people living in areas that are at risk from climate change consequences such as rising seas, floods, landslides and heatwaves. Think about how to strengthen existing homes so people don't have to move. Explore the use of passive heating and cooling technologies and renewable energy to ensure that the homes still have energy after natural disasters.

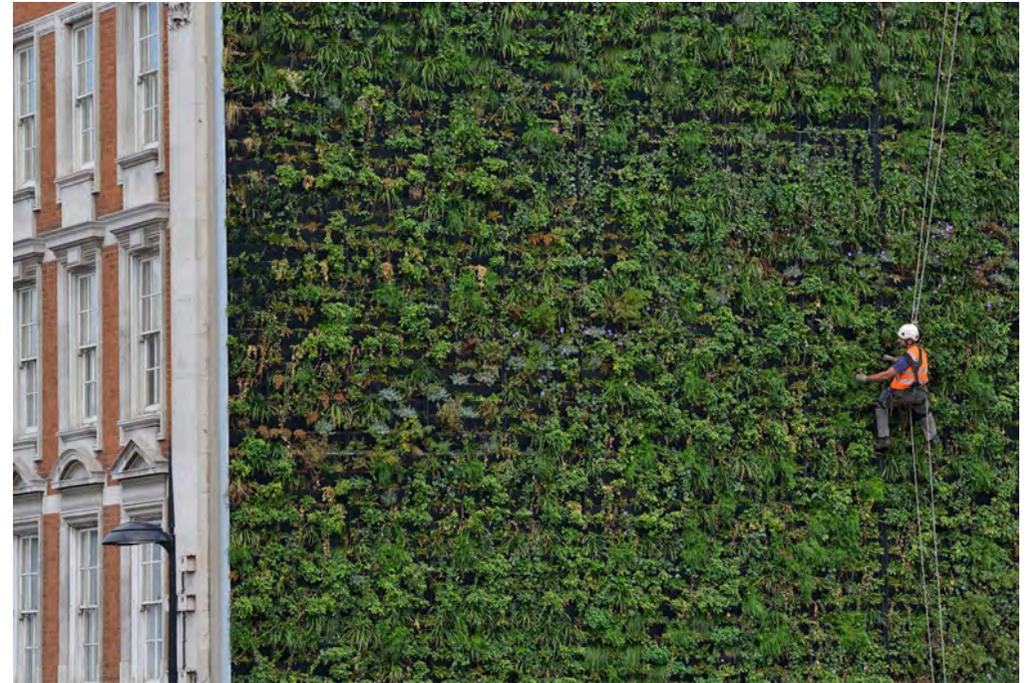


## EXAMPLE

# A LIVING GREEN WALL

Gary Grant of Green Roof Consultancy designed this “living wall” on the exterior wall of the Rubens at the Palace hotel in Victoria, London, to reduce urban flooding and air pollution. The wall containing 10,000 plants and 16 tons of soil and is designed to attract bees, butterflies and birds. The 10,000 plants are irrigated by harvested rainwater from storage tanks on the roof, which Grant says will reduce flooding at ground level.

Covering an entire facade of a hotel, the 350 square metres wall of vertical plants is the largest in London.



[CLICK ON IMAGE TO VIEW CASE](#)



## EXAMPLE

# BOWL-SHAPED ROOFS TO COLLECT RAINWATER

Tehran-based BM Design studios have proposed buildings with bowl-shaped vessels on their roofs to collect rainwater in hot and dry climates.

The idea was first proposed in the plans for a primary school in an arid area of Iran. The intention was to offset the building's water consumption by collecting the little amount of rain that falls in area.

The domes on the roof also provide additional shade for the domed roof while letting the air move around to cool the roofs down. There are also rain-water harvesting reservoirs between the walls that would help to cool down the building and reduce the need for air conditioning. Recessed windows and doors and a sunken courtyard would also help control heat build up in the classrooms.

“Some 65 per cent of Iran has an arid or hyper arid climate, and approximately 85 per cent of the country an arid, semi-arid or hyper arid environment,” said the architects.

“Unfortunately, every year, this zone expands. Big lakes like Lake Urmia have shrunk to a fraction of their size, gradually disappearing. The consequences include thousands of farmers losing their jobs and [pushing] the city itself to the brink of rationing drinking water. We may not be very far from witnessing a big displacement of people.”



[CLICK ON IMAGE TO VIEW CASE](#)





# HEALTH X PRODUCTS & SPACES

## WHAT CAN DESIGN DO TO EMPOWER PEOPLE LIVING IN [LOCATION] TO AVOID THE HEALTH RISKS AVOIDED WITH CLIMATE CHANGE?

### THE CHALLENGE

Higher temperatures will cause heat-related deaths and illnesses. Air pollution, already a problem due to the burning of conventional fuels, will worsen, causing respiratory and cardiovascular diseases. Pollen counts will rise, increasing the incidence of asthma. Mosquitoes and ticks will also thrive in hotter weather, leading to a higher infection rate of malaria, dengue, and Lyme disease. Higher temperatures will also breed more pathogenic bacteria in food and water, leading to diarrhoea.

### THE OPPORTUNITY

Consider creating a simple non-medical product that can prevent illness and disease, such as a mosquito net, gloves, or masks. Alternatively, you could consider making an existing vaccination, disinfection or sanitation solution more accessible and affordable to people, perhaps by making it available through a non-medical outlet. Consider how to empower people to protect themselves against air pollution.





# WATER X PRODUCTS & SPACES

## WHAT CAN DESIGN DO TO EMPOWER PEOPLE TO UTILISE MORE NATURAL WATER SOURCES IN [LOCATION]?

### THE CHALLENGE

Climate change is creating new water shortages and worsening existing ones around the world. An over-reliance on 'invisible' water sources such as centralised utilities or boreholes can make people more vulnerable to droughts, which can cause food shortages, illness and even death.

### THE OPPORTUNITY

Consider making a way for people to store and filter water from natural sources, such as rainwater, seawater, or water from lakes. Think about how to make it easy for everyone to maintain a personal source of water as a 'buffer' during droughts, and ways to reuse wastewater. Consider the need for a filter and a signal that the water is safe to drink so that people can trust their water.



## EXAMPLE

# THE HIPPO WATER ROLLER

Climate change will reduce access to fresh water in many areas in the world, which means many people will have to rely on water sources that are further away. That means they also need new ways of transporting water, too.

The Hippo Water Roller is one answer. The 90 litre barrel-shaped container enables people to transport up to 5x more water to their homes and food gardens than their traditional method – carrying a 20 litre bucket on their heads.

Instead of reinventing a custom or practice, it gives people a better tool to do what they already do, ensuring that there is a low barrier to adoption.

The Hippo Water Roller is low-tech, durable, and maintenance-free. This empowers users because they are not dependent on anyone else to use it. A steel frame can also be added to turn it into a trolley to transport goods to market.

The Hippo Water Roller is widely accepted in many countries by communities where water infrastructure is either unreliable or totally non-existent.



[CLICK ON IMAGE TO VIEW CASE](#)



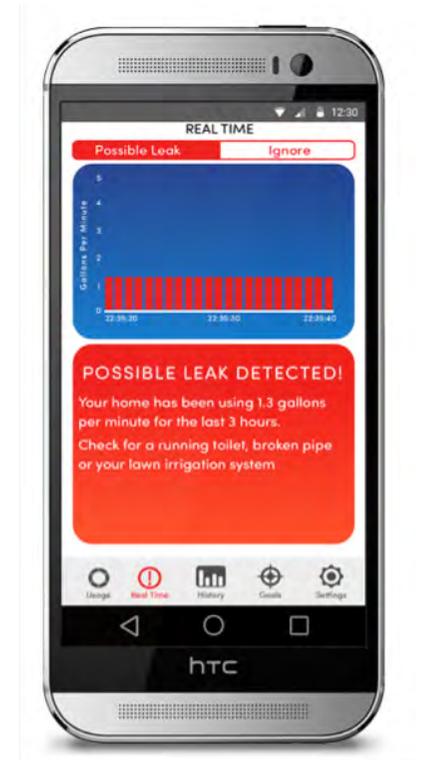
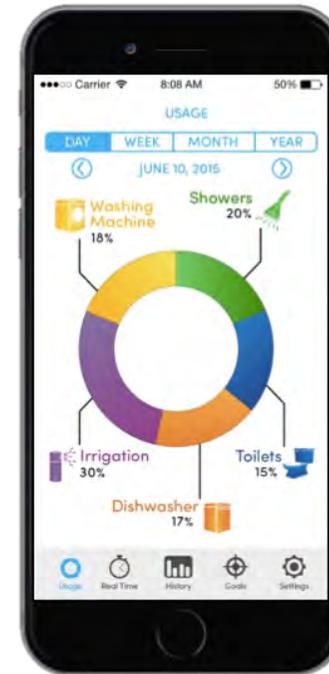
## EXAMPLE

# FLUID: A SMART WATER METER

FLUID is a smart water meter that helps you understand exactly when, where and how much water you're consuming in your home on a daily basis.

“Right now consumers get a water bill every month and it's in units, not gallons, so you have to flip the sheet over and do some math to find out how many gallons you're using,” says FLUID co-founder Josh Becerra. “FLUID is really about empowering consumers to take more control over their water usage.”

FLUID simply snaps around the main water pipe in your home. You plug it in, connect it to your Wi-Fi, and download the FLUID app to access real-time reports on your iPhone or Android.



[CLICK ON IMAGE TO VIEW CASE](#)

### 03. DESIGN STRATEGY

# SERVICES



## DESIGN SERVICES THAT HELP PEOPLE TO ADAPT TO CLIMATE CHANGE TOGETHER

Designers think holistically and take a human-centred approach to creating services. This is crucial for finding new ways to connect people online and offline to improve (or invent) services around water, food, energy, housing and healthcare, that help people to adapt to climate change.



# FOOD X SERVICES

## WHAT CAN DESIGN DO TO CREATE SERVICES THAT PROVIDE ENOUGH FOOD FOR THE POOREST PEOPLE IN [LOCATION] WHEN CLIMATE CHANGE MAKES FOOD MORE EXPENSIVE?

### THE CHALLENGE

Climate change will make food scarcer, as extreme temperatures, floods, rising seas and acidifying oceans will damage or destroy common food sources. This will make food more expensive, and in many areas, it will lead to famine. The poorest and most vulnerable members of society will be most affected by a poor diet and malnutrition.

### THE OPPORTUNITY

Explore how food could be more equitably distributed to the poorest people during food shortages due to climate factors. Consider what kinds of foods are likely to remain available and what surplus or waste foods could be 'rescued' and re-distributed. Think about how the chain of middlemen between consumer and producers could be shortened to make the relationship more direct, and therefore more resilient than the current system.

## EXAMPLE

# NWADJAHANE, MOZAMBIQUE

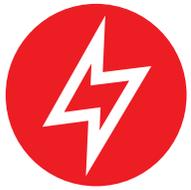
Climate change is likely to increase inequality as its effects are not evenly distributed, and the poor are less able to protect themselves. Increasing collaboration and sharing assets and resources is one way to overcome this.

Villagers in Nwadjahane, Mozambique, are already feeling the effects of climate change. The rice, vegetables and potatoes in their lowland fields are destroyed during flood years. The maize and cassava grown on highland areas, on the other hand, grow well during flood years but not during droughts. Households used to only have one plot, in either the highlands or lowlands, so suffered hunger and economic difficulties if it wasn't the 'right' year for their crops.

As a solution, households developed informal farming associations to lobby for new areas to farm. Fields from the lowlands and highlands were re-assigned so that families could have a plot in each, increasing their food security in both flood and drought years. The associations have since become testing grounds for innovative and experimental farming practices, including drought-resistant crops.



[CLICK ON IMAGE TO VIEW CASE](#)



# ENERGY X SERVICES

## WHAT CAN DESIGN DO TO GIVE EVERYONE IN [LOCATION] ACCESS TO AFFORDABLE RENEWABLE ENERGY?

### THE CHALLENGE

The more extreme temperatures that will come with climate change will hit the poor disproportionately hard, because many can't afford heating or cooling. Energy shortages caused by natural disasters that damage infrastructure and fuel sources will also hit the poorest and most vulnerable members of society the hardest, affecting their health and livelihoods.

### THE OPPORTUNITY

Consider how to spread renewable energy by making it more convenient and affordable to switch to from conventional or common energy sources such as oil, gas, coal and firewood. Think about how to make this available to the poorest and most vulnerable members of society, possibly by introducing community-owned renewable energy assets. Explore the possibility of increasing access to 'passive' heating and cooling methods, such as ventilation, insulation and solar heaters and cookers.

## EXAMPLE

# SOLAR LIGHT COMPANY

Solar Light Company is targeting Africa's traditional markets to provide another business opportunity to small-scale retailers and informal street vendors. For example, the "Sunana" portable solar-powered mobile charging system means customers and vendors can charge their cell phones while they shop and work, and individuals can earn money by offering this needed service. The prototype Sunana unit boosts a solar panel which can be "worn" on top of a market stall or more modest umbrella. It comes with components for charging mobile phones and attaching LED lights. Solar Light Company will build and assemble in country an initial set of prototypes for the local market.



CLICK ON IMAGE TO VIEW CASE

## EXAMPLE

# IRIS: KINEMATIC SEA PODS GENERATE ENERGY IN THE SHADOW OF BEIRUT'S HIGH-RISES

In an effort to reclaim Beirut's coastline from soaring coastal developments, local architecture firm Najjar & Najjar Architects has created IRIS, a kinematic pod installation that serves as a modern-day civic refuge and energy-harvesting machine. Once an expansive coastline used by fishermen and locals, Beirut's seafront has been overcome with high-end residential buildings that deprive people living in traditional single-family homes from their once-expansive views. The pods will not only provide these people with a more intimate connection to the Mediterranean Sea, they'll provide energy too!



[CLICK ON IMAGE TO VIEW CASE](#)



# HOUSING X SERVICES

## WHAT CAN DESIGN DO TO FOSTER/STRENGTHEN NEIGHBOURHOOD TIES IN [LOCATION] TO INCREASE DISASTER RESILIENCE

### THE CHALLENGE

The impact of climate change is magnified by social isolation: when neighbours do not know each other, they are more likely to be injured or killed in natural disasters. They are also more likely to suffer damage to their homes if they don't assess risk and protect their neighbourhood collectively. Recovering from a natural disaster or coping with the consequences of climate change is harder when people act alone.

### THE OPPORTUNITY

Consider how to encourage neighbourhoods to co-create disaster risk management plans and practices. These could be an evacuation plan in the event of a natural disaster, or regular check-ins with neighbours during heatwaves or snowstorms. Explore how communities can map and assess risk together. Consider leveraging existing local networks (such as schools, religious institutions, workplaces) for spreading knowledge on disaster preparedness and awareness.

## EXAMPLE

# BANGLADESH

In Bangladesh, volunteers have formed community-based organisations to become more prepared for floods, and limit their damage when they come. The poor community forming the organisation identify their vulnerabilities to floods and are then responsible for sending early warning messages to the communities and creating mass awareness. They are also in charge of saving people who get stuck or marooned during floods.

They have also got union groups and local governments to cooperate. One of the additional positive outcomes of the project was that the community has become more cohesive, due to increased contact, the poorest and most vulnerable families have become more confident as a result of their participation, and local livelihoods have been strengthened.



[CLICK ON IMAGE TO VIEW CASE](#)



# HEALTH X SERVICES

## WHAT CAN DESIGN DO TO CREATE SERVICES IN [LOCATION] TO SPREAD TREATMENTS FOR DISEASES AND INFECTIONS RELATED TO CLIMATE CHANGE?

### THE CHALLENGE

Higher temperatures will cause heat-related deaths and illnesses. Air pollution, already a problem due to the burning of conventional fuels, will worsen, causing respiratory and cardiovascular diseases. Pollen counts will rise, increasing the incidence of asthma. Mosquitoes and ticks will also thrive in hotter weather, leading to a higher infection rate of malaria, dengue, and Lyme disease. Cases of diarrhoea and gastrointestinal diseases will also increase, as higher temperatures result in more pathogenic bacteria in food and water.

### THE OPPORTUNITY

Consider how you can scale existing treatments and methods to help prevent the spread of diseases, infections and illnesses linked to climate change. Explore how existing treatments for diseases could be made quickly available after disasters. Think about how you can leverage existing relationships and community ties, such as schools, workplaces and religious groups to spread access to treatment, particularly after disasters.



# WATER X SERVICES

## WHAT CAN DESIGN DO TO EMPOWER PEOPLE IN [LOCATION] TO PREVENT WATER DISASTERS OR WATER SHORTAGES

### THE CHALLENGE

Climate change is causing more frequent and intense floods and droughts. People are more vulnerable to drought when they rely on water sources that are either unreliable (rainfall) or invisible (boreholes, reservoirs managed by central utilities), and more vulnerable to floods when their environment is ill-prepared.

### THE OPPORTUNITY

To combat drought, consider making a service in which water is a collectively-managed resource. Think about how to solve unequal access to water between different groups of people. To defend against floods, consider creating a service where people can collectively assess risk and co-create defenses or defense strategies.

## EXAMPLE

# SÃO PAULO WATER COLLECTIVE

São Paulo suffers from a chronic water shortage due to low rainfall and drought. Deforestation worsens this situation. Many people in the middle/upper class area of the city, Granja Viana, have internal water storage tanks and so did not see the water crisis as an urgent cause for concern. But in the favela part of town, Brasilândia, where residents were reliant on a centralised water supply, sometimes had water for up to ten days. As a result, some had built their own water collection systems, but often the tanks weren't properly closed and didn't filter the rainwater well, so a lot of people got sick, sometimes with dengue fever.

One resident in Granja Viana, Isabela de Menezes, started running workshops to teach people to install systems that safely filter and store rainwater straight from the roof.

**“Our main message is that water falls from the sky and it's FREE. It's terrible that the country doesn't use this resource. We would show them how poor houses and middle class houses and upper class houses can learn the importance of this resource and use it in a positive way. And also how beautiful and creative we can make it”.**

– Isabela de Menezes, Transition Granja Viana.



[CLICK ON IMAGE TO VIEW CASE](#)

## EXAMPLE

# TUSCON, ARIZONA

Tucson, Arizona, only has 305 mm of rainfall per year. Five students at the University of Arizona started a non-profit group, the Watershed Management Group (WMG), to encourage water conservation in a desert ecosystem.

One of their initiatives helps residents cheaply collect and store rainwater.

Homeowners volunteer time on water-harvesting projects, totting up hours spent as a volunteer. When they have volunteered enough hours, the volunteer gets to host a workshop at their house, and the rest of the team comes over to help install the rainwater storage system.



[CLICK ON IMAGE TO VIEW CASE](#)

## 04. DESIGN STRATEGY

# SYSTEMS



## DESIGN SYSTEM TRANSFORMATIONS THAT ACCELERATE PEOPLE'S ADAPTATION TO CLIMATE CHANGE

Designers can play a crucial role in creating lasting change that transforms the way people live and organise society. This is needed to make the many systems most people rely on (from food, water, healthcare, housing and energy) more resilient to climate change.



# FOOD X SYSTEMS

## WHAT CAN DESIGN DO TO STRENGTHEN AND PROTECT ECOSYSTEMS IN [LOCATION] THAT OUR FOOD DEPENDS ON?

### THE CHALLENGE

Modern agricultural and urban planning practices cause desertification, depleted soil, and decreases diversity of plant and animal species, all of which make our future food supply more vulnerable to changes in the climate.

### THE OPPORTUNITY

Consider how to better preserve and encourage local biodiversity within mainstream farming or urban construction practices. This could be achieved by enriching depleted soil, combating desertification, preventing overfishing or over-hunting, or creating a system to grow food in harmony with the changing water cycle. Consider methods that have worked on a small scale, such as permaculture and holistic grasslands management.

## EXAMPLE

# THE GREAT GREEN WALL, A PAN- AFRICAN CLIMATE CHANGE PROGRAMME

The Great Green Wall for the Sahara and the Sahel Initiative is a pan-African initiative launched in 2007 by the African Union.

Its goal is to reverse land degradation and desertification in the Sahel and Sahara, boost food security and support local communities to adapt to climate change.

An estimated 83 percent of rural Sub-Saharan Africans are dependent on livelihoods from the land, yet 40 percent of Africa's land resources are currently degraded, driving poverty, hunger, unemployment, forced migration and conflict while amplifying climate risks such as drought and floods.



[CLICK ON IMAGE TO VIEW CASE](#)



# ENERGY X SYSTEMS

## WHAT CAN DESIGN DO TO MAKE ENERGY SYSTEMS IN [LOCATION]'S MORE RESILIENT TO CLIMATE CHANGE?

### THE CHALLENGE

Both large scale centralised grids and local energy sources such as firewood and biomass are vulnerable to the increasingly frequent and severe natural disasters and extreme temperatures caused by climate change. Alternative energy systems exist, but are not accessible by everyone.

### THE OPPORTUNITY

Consider strengthening existing renewable energy solutions so that they can scale to become a feasible alternative to the current system. This could be implemented through community ownership of energy infrastructure. Ensure that the system is resilient to external shocks and that it can supply current and near-future energy demand.

## EXAMPLE

# SWEDEN

The Swedish government announced in 2015 that they would aim to become one of the first countries to become fossil-fuel free. Sweden had already announced its plans to make Stockholm fossil fuel-free by 2050.

The decision was partly motivated by the climate change effects Sweden has already experienced: extreme heatwaves and bushfires.

Sweden already gets two-thirds of its electricity from non-fossil fuel energy sources – mostly hydroelectric and nuclear – and it will now focus on increasing its solar and wind energy potential, as well as making its transport industry more sustainable.

The government will now be focusing on:

- smart grids
- renewable energy storage technology
- electric buses
- subsidies for green cars
- renovating residential buildings to make them more energy-efficient



[CLICK ON IMAGE TO VIEW CASE](#)



# HOUSING X SYSTEMS

## WHAT CAN DESIGN DO TO SUCCESSFULLY PROTECT PEOPLE IN [LOCATION] TO PREVENT OR RESPOND TO DISASTER?

### THE CHALLENGE

Rising seas, floods and storms threaten to submerge and destroy many human settlements. Intense temperatures and droughts will force people to migrate from others. There are many personal, social, financial and cultural reasons preventing people from moving preemptively.

### THE OPPORTUNITY

Think about how to smoothly relocate people to areas that are less threatened by climate change, and how to prevent more people from moving to a risk area. Consider how you could design or plan a long-term settlement solution for a community who is at threat. Think about the things that people require in such a situation, including psychological safety and comfort.

## EXAMPLE

### EXO

After Hurricane Katrina, Michael McDaniel was inspired to create EXO Reaction Housing Solution – a low cost, portable disaster relief solution for those displaced from their homes due to natural disasters. The EXO comes almost completely assembled and can be transported with many others at a time due to its stackable design.

**“You can arrange these things as kind of more for encampments and more of a city grid type layout, or you can circle the wagons, essentially, and form these circular pods out of them, which give you this semi-private communal area for people to actually spill out into so they’re not actually trapped inside these units. Now this fundamentally changes the way we respond to disasters, because gone are the horrid conditions inside a sports arena or a gymnasium, where people are crammed on these cots inside. Now we have instant neighborhoods outside.”** (TED talk, 2012)

– Michael McDaniel



[CLICK ON IMAGE TO VIEW CASE](#)



# HEALTH X SYSTEMS

## WHAT CAN DESIGN DO TO STRENGTHEN HEALTH CARE IN [LOCATION] TO REDUCE THE HEALTH RISKS ASSOCIATED WITH CLIMATE CHANGE??

### THE CHALLENGE

Higher temperatures will cause heat-related deaths and illnesses. Air pollution, already a problem due to the burning of conventional fuels, will worsen, causing respiratory and cardiovascular diseases. Pollen counts will rise, increasing the incidence of asthma. Mosquitoes and ticks will also thrive in hotter weather, leading to a higher infection rate of malaria, dengue, and Lyme disease. Cases of diarrhoea and gastrointestinal diseases will also increase, as higher temperatures result in more pathogenic bacteria in food and water.

### THE OPPORTUNITY

Consider how to scale existing projects that have improved health outcomes. Think about how an alternative awareness, prevention or treatment system that starts as a grassroots effort could replace the current system. Explore the role of sanitation, vaccination and protection from air pollution in the prevention of illness and disease.



# WATER X SYSTEMS

## WHAT CAN DESIGN DO TO SCALE WATER SYSTEMS TO PROTECT AGAINST FLOODS AND/OR DROUGHTS IN [LOCATION]?

### THE CHALLENGE

Sea levels are rising due to melting ice caps. Disruptions to the water cycle due to climate change are making floods and droughts more common and more intense. Higher global temperatures are also increasing demand for fresh water resources. Under these circumstances, an over-reliance on centralised water utilities or 'invisible' water sources such as boreholes increases people's vulnerability.

### THE OPPORTUNITY

Consider how to scale water systems that have already worked on a small scale. Think about the need for efficient and distributed rainwater collection or desalination techniques in drought-prone regions; think about flood defences and preventative measures in areas prone to flooding.

## EXAMPLE

# KAIKONDANAHALLI KERE ABHIVRUDDHE SAMASTHE

The 210 lake systems around Bangalore have become increasingly polluted and decayed in recent years. This is a problem because people in the area are dependent on the lakes for their water supply.

Traditional top-down plans haven't really taken community needs into account. The government suggested an ornamental garden around one lake to help build a sense of community, but people pushed back because it wasn't what they really needed.

Instead, a group of local citizens formed the Kaikondanahalli Kere Abhivrud-dhe Samasthe (the Kaikondanahalli lake development organization). In collaboration with the local government, they developed a plan for lake restoration that pays attention to conservation, water rejuvenation, urban recreation, and socio-economic requirements of a wide segment of society. The lake has now been fully restored and cleaned. There is a rich variety of plants and trees that has been planted. It is accessible to both the public and to cattle-owning households from the area. Paths have been provided around the lake periphery for walking, jogging and exercise, and with play areas for children. The project was such a success that they are now working toward applying this user-centred/multi-stakeholder and inter-disciplinary approach to rejuvenating a wider network of lakes.



[CLICK ON IMAGE TO VIEW CASE](#)



**IN PARTNERSHIP WITH:**

---

IKEA Foundation  


 **AUTODESK.**  
FOUNDATION

**JOIN THE #CLIMATEACTIONCHALLENGE**  
**WHATDESIGNCANDO.COM/CHALLENGE**