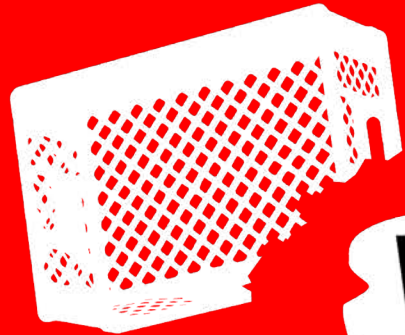


**WHAT
DESIGN
CAN DO**

NO

CHALLENGE



WASTE

CUT EMISSIONS

**FIGHT
CLIMATE
CHANGE**

**CUT
WASTE**

CITY

PERSPECTIVE

**SÃO PAULO
& RIO**



**WASTE IN
SÃO PAULO & RIO**

A BRIEF SUMMARY OF **SÃO PAULO'S & RIO'S WASTE SITUATION**

INTRODUCTION

SÃO PAULO & RIO DE JANEIRO BETWEEN FORESTS AND OCEANS

Brazil is blessed with natural resources and cultural diversity. And perhaps nowhere is this more evident than in Rio de Janeiro and São Paulo. Only 500km away from each other, two of the largest cities in the world occupy a magnificent region nestled between the Atlantic Forest and the Atlantic Ocean. With a **combined population of around 35 million people the impact of this massive urban occupation on the environment is troubling and must change.**

The **No Waste Challenge** aims to shed light on solutions at all levels of the chain of **take, make and waste**, and to promote design ideas that are feasible, scalable and can produce systemic impact. We should all learn from **the wisdom of the indigenous people of Brazil** and be inspired by the **clever creativity of local communities** who are resourceful in their solutions to their daily problems.



A BRIEF SUMMARY OF SÃO PAULO'S & RIO'S WASTE SITUATION

CITIES WITH INEQUALITY

Brazil is a country of large contrasts in all aspects of its natural wealth and social structures, with **disparaging inequalities in income distribution and overall quality of life**. Social inequality in Brazil directly impacts how people take, make, and waste. **São Paulo and Rio de Janeiro are the richest cities in the country and are also home to some of the most populous slums in Brazil**. This creates contrasts such as the immense daily waste of food in the cities while other parts of the population go hungry. And the disregard for the climate and biodiversity has its greatest implications for those least fortunate.

Climate solutions and social inequality should be addressed as interrelated concerns. By improving our relationship with the environment we will improve conditions of life in cities, and vice-versa. The No Waste Challenge is looking for designs that work as a systemic good, benefiting multiple issues that are urgent for living and thriving in Brazil's major cities.



A BRIEF SUMMARY OF **SÃO PAULO'S & RIO'S WASTE SITUATION**

EXPLOITING NATURAL WEALTH

Brazil is gigantic and enjoys **an extreme abundance of resources and (bio)diversity**. This translates directly into the behaviour and culture of Brazilians. **São Paulo and Rio de Janeiro** are hubs of innovation, as well as trend-setters and excellent labs for new ideas in Brazil.

However, the extraction of natural resources throughout the country happens almost without barriers, and the level of consciousness of the problems this causes is low. **Exaggerated consumerism is also well-accepted behaviour**. Brazilians usually associate abundance with love, happiness and success.

Brazil's problems are gigantic, and that creates **a feeling that the issues are too enormous to solve**. The complexity is such that it is difficult to know what to do and how to make things better.



A BRIEF SUMMARY OF SÃO PAULO'S & RIO'S WASTE SITUATION

POLLUTING THE OCEAN

Brazil produces **2.95 million tonnes of single-use plastic packaging and disposable products** (plates, cutlery, straws, Styrofoam containers for delivery, plastic bags). This is equivalent to producing around 500 billion items that are designed to be discarded after a single use. Brazil is the 4th largest producer of plastic pollution in the world.

Globally, only 9% of all plastic waste produced in the world has been recycled. **Brazil has low recycling rates.** In other words, **most of the plastic waste is accumulated in landfills, dumps or dispersed in the environment.**

At least 70% of the waste found on Brazilian beaches is plastic, mainly from packaging, and **Brazil contributes 325 thousand tonnes of plastic waste to the sea, brought from sources inland.**

As plastic continues to flood our oceans, the list of marine species affected by plastic debris grows. **In Brazil, more than 3,700 animals that have been necropsied were found to have ingested plastic waste.** Animals are not only having contact with residues from human production, but are dying from them. There are also negative impacts on fishing and tourism, on the quality of the landscape and on the high costs of waste removal and disposal.



A BRIEF SUMMARY OF SÃO PAULO'S & RIO'S WASTE SITUATION

A GUANABARA BAY EMERGENCY

Guanabara Bay is considered by many marine scientists as one of the most polluted bays in the world. Every year **33.000 tonnes of waste is dumped** on Guanabara Bay. **70% of the sewage from 9 million inhabitants** of the State of Rio de Janeiro **now flows into the bay untreated**. This is equal to 18,000 liters of sewage per second.

The health of Guanabara Bay, at the heart of Rio de Janeiro, has a direct impact on the lives of the surrounding population - approximately 9 million residents in 16 cities and along more than one hundred rivers, streams and canals. As in a complex network, the polluted waters of the bay is a reflection of what happens over 60 km away, though many struggle to grasp that dimension of the problem. A healthier bay depends on a population with a better quality of life, and vice versa.

Furthermore, marine scientists report that the water dynamics inside the bay forces the water pollution and plastic waste to be spread along the beaches of Rio, amplifying the problem.



A BRIEF SUMMARY OF SÃO PAULO'S & RIO'S WASTE SITUATION

A 'STATUS QUO' NARRATIVE THAT NEEDS TO BE CHALLENGED

The problem of plastic pollution is usually attributed to **flaws in the waste management system**. This narrative transfers responsibility (and blame) to the consumer (who fails to separate their waste) and to the cities (which do not do selective collection, do not invest in recycling infrastructure and do not regulate their dumps). Thus, political solutions have focused on improving the recyclability and recycling rates of plastic products and packaging and, in some cases, on promoting the energy recovery of this waste.

However, **a realistic assessment shows** that even the most optimistic assumptions about **an increase in recycling rates will not keep up with the volume and speed of single-use plastic production** and therefore will not prevent the flow of plastic waste to the ocean.



LOCAL INSIGHT

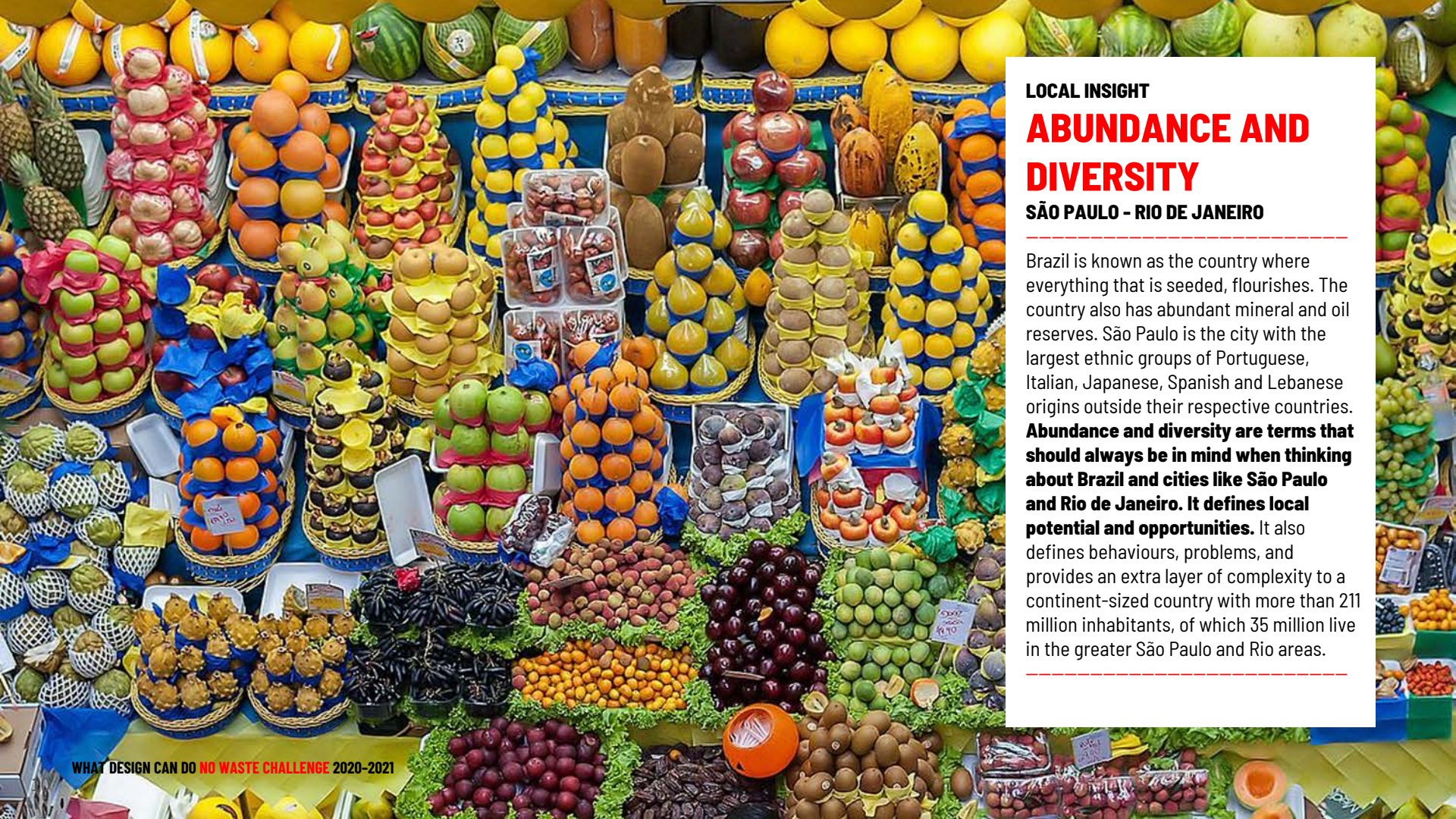
REDUCE, REUSE, RETURN

SÃO PAULO - RIO DE JANEIRO

We need to move towards a system that involves **reducing waste, reusing and redesigning or replacing packaging, composting, in addition to significant and permanent changes in our consumption habits.**

To keep plastic out of nature, we need to reduce the amount of unnecessary and problematic plastic that is produced at the source. Companies need to assume their role in this vital cycle and reduce the amount of disposable plastics, by offering consumers alternative options. Well-known raw materials such as paper, aluminium and certified wood are gaining momentum as substitutes to plastic. Unusual and innovative materials also stand out, such as cups made from cassava pulp, seaweed and sugarcane-based packaging.





LOCAL INSIGHT

ABUNDANCE AND DIVERSITY

SÃO PAULO - RIO DE JANEIRO

Brazil is known as the country where everything that is seeded, flourishes. The country also has abundant mineral and oil reserves. São Paulo is the city with the largest ethnic groups of Portuguese, Italian, Japanese, Spanish and Lebanese origins outside their respective countries.

Abundance and diversity are terms that should always be in mind when thinking about Brazil and cities like São Paulo and Rio de Janeiro. It defines local potential and opportunities.

It also defines behaviours, problems, and provides an extra layer of complexity to a continent-sized country with more than 211 million inhabitants, of which 35 million live in the greater São Paulo and Rio areas.



LOCAL INSIGHT

RESOURCEFUL COMMUNITIES

SÃO PAULO - RIO DE JANEIRO

Waste management and access to basic sanitation varies in different areas of São Paulo as well as in Rio de Janeiro. **There are places where there is no garbage collection at all.** Selective collection of garbage and reuse of materials end up becoming an informal source of income in these communities.

The silver lining is that **in these peripheries and underprivileged communities, there are exceptional initiatives**, such as community gardens, campaigns for the integral use of food, and actions focusing on the repair and reuse of objects and equipment.

An aerial photograph of a mangrove forest. The water is a deep blue, and the trees are a vibrant green. Several small, rectangular houses are built on stilts in the water, scattered throughout the forest. The houses have flat roofs and some have small porches. The overall scene is a mix of natural beauty and human habitation.

LOCAL INSIGHT

INDIGENOUS WISDOM AND CLIMATE RESILIENT DESIGN

SÃO PAULO - RIO DE JANEIRO

Since the first colonizer stepped foot in Brazil, the wisdom of those who lived on this land for thousands of years has been by turns ignored, neglected, and destroyed. However, there is now a greater awareness of our need to learn from those who have lived symbiotically with nature, and that is why the No Waste Challenge looks for designers to be inspired by this vernacular knowledge in their search for smarter and more sustainable ways to deal with waste. Indigenous technologies work with nature instead of trying to conquer it. Once hybridized, and scaled, these indigenous technologies could offer a new path to exponentially shrink the ecological footprint of humankind and mitigate its forecasted collapse.



**WHERE DESIGN CAN
MAKE A DIFFERENCE
IN SÃO PAULO & RIO**

TAKE LESS

OPPORTUNITIES FOR DESIGN

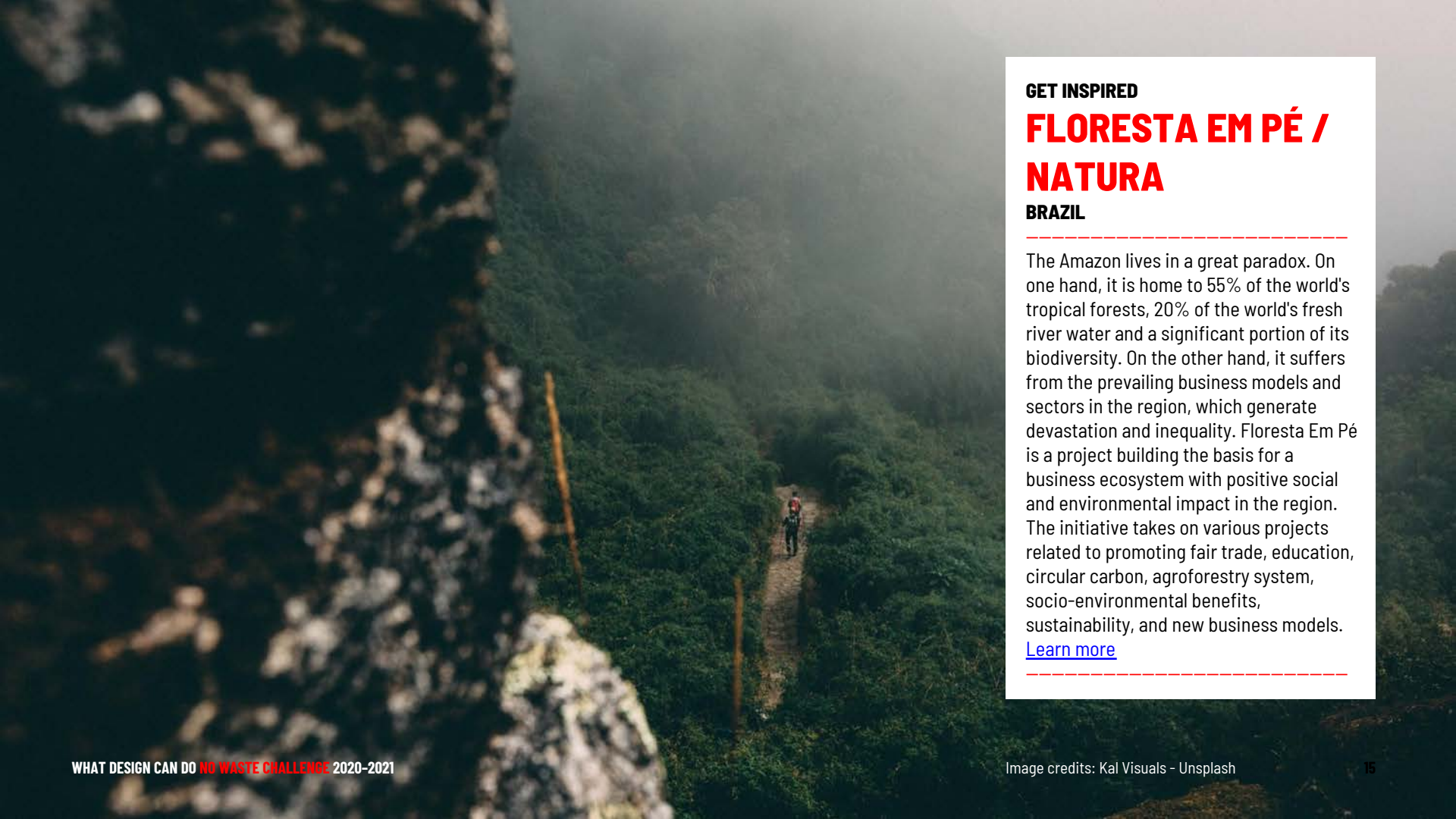


How can we use fewer natural resources and consume more mindfully? We have highlighted some key opportunities, but there are plenty more! Refer to the global brief for further inspiration.

Changing mindsets: how can we shift our social and cultural mentality that views consumption as a way of life to aspire to? How can we encourage other forms of status tied to the social good instead?

Regenerating our forests, oceans, our urban ecosystems: how can we be inspired by the wise protectors of the forests, Brazil's indigenous people, towards design solutions that work in synergy with the environment?

Reducing our footprint: how to design products that have a net zero (or nearly zero) negative impact on our environment? How can we protect the diversity and abundance of resources in Brazil by using them in a respectful and sustainable way?



GET INSPIRED

FLORESTA EM PÉ / NATURA

BRAZIL

The Amazon lives in a great paradox. On one hand, it is home to 55% of the world's tropical forests, 20% of the world's fresh river water and a significant portion of its biodiversity. On the other hand, it suffers from the prevailing business models and sectors in the region, which generate devastation and inequality. Floresta Em Pé is a project building the basis for a business ecosystem with positive social and environmental impact in the region. The initiative takes on various projects related to promoting fair trade, education, circular carbon, agroforestry system, socio-environmental benefits, sustainability, and new business models.

[Learn more](#)



GET INSPIRED

CARAVEL PROJECT

SÃO PAULO - RIO DE JANEIRO

The Caravel is a sculptural urban intervention that aims to raise awareness about water pollution while treating it on a microscopic level. Developed by Infinito Mare in a partnership with Furf Design, the project is based on a highly sustainable biomimetic design approach. Each Caravel is an optimized innovation that allows algae to grow using water pollution as a food source. The goal is to use urban recycled plastic to create more Caravels. The Caravel Project contributes to 12 out of the 17 UN Sustainable Development Goals.

[Learn More](#)

GET INSPIRED

URBAN GARDEN

SÃO PAULO

Urban garden Vila Nova Esperança has transformed the reality and the dreams of the Vila Nova Esperança favela in São Paulo. The community – which has no access to electricity, plumbing, rubbish collection, sewage or asphalt roads – plans to be a sustainable neighbourhood and an example for the country. The garden project, União pela Urbanização da Vila Nova Esperança, has won prizes and this has encouraged the residents even more, committed as they are to changing the scenario in which they live.

MAKE BETTER

OPPORTUNITIES FOR DESIGN



"Gambiarra" is the Brazilian way of solving problems with low costs, little materials and lots of improvisation. How can we encourage sustainable ways of making that capitalize on what Brazil has in abundance: workforce and creativity?

Slim packaging: How can we create products and packaging that do not have waste as an unintended byproduct?

Things to keep: how can our designs encourage the reuse of products that are typically used only once, while staying mindful of the materials that take years to biodegrade?

How can we make products and materials that are kept in use or regenerate natural systems? We have highlighted some key opportunities, but there are plenty more! Refer to the global brief for further inspiration.



GET INSPIRED

BEEGREEN

BRAZIL

This Brazilian brand aims to contribute to a shift in consumption habits and to boost awareness about the environmental impact of a fair economy. They do that by offering sustainable products and services to people, events and businesses. By giving individuals sustainable options, Beegreen believes that the users of their products have contributed to divert tons of items from landfills and other disposal areas. They offer, among others, personalized iron straws, eco-bags, cups and packages.

[Learn More](#)





GET INSPIRED

OKA BIOTECHNOLOGY

SÃO PAULO

Environmentally-aware and design-oriented, OKA Biotechnology is a research and development company born at the Tropical Roots and Starches Research Center at the São Paulo State University. Aiming to reduce the consumption of plastic and the production of waste, the company promotes scientific innovations alongside local sustainable development that supports traditional communities. They offer 100% compostable bio-packages, made from renewable and non-toxic raw materials. Their compostable and edible packaging is used for food, gifts, cosmetics and electronics, for immediate consumption or for fast-cycle markets.

[Learn More](#)



GET INSPIRED

JÁ FUI MANDIOCA!

SÃO PAULO

Já Fui Mandioca is a Brazilian startup located in São Paulo. It pioneered an innovative technology that produces bio packaging products made out of 100% cassava pulp. After 16 years of research and development, the use of this renewable raw material has achieved scalability, providing a truly environmentally-friendly packaging solution for global clients. The entire production process is clean, creating not only a good solution for disposal but also reducing the consumption of water in its making. The initiative has gained international recognition and various awards, and is now listed as a start-up that creates a greater positive impact in Latin America.

[Learn more](#)

HANDLE SMARTER

OPPORTUNITIES FOR DESIGN



How can we dispose of goods more responsibly and treat waste as a resource? We have highlighted some key opportunities, but there are plenty more! Refer to the global brief for further inspiration.

Let no waste go to waste:
How can we design products that use waste as source material for a new cycle of production?

Smart delivery: How can we streamline delivery systems of goods and materials in order to minimize waste?

Local sourcing: how can we encourage production and consumption to take place locally, requiring less travel and waste?



GET INSPIRED

PIMP MY CARROÇA

BRAZIL

Pimp My Carroça is a movement that began in 2012 to lift waste pickers out of their invisibility - and to increase their income - through art, awareness, technology and collective participation. Its mission is to develop creative and collaborative actions that positively impact the recognition and fair remuneration of waste pickers and collectors of recyclable materials in Brazil by civil society, and public and private powers.

[Learn More](#)

Photo Credit: Pimp My Carroça, PV



LISTEN TO THE OCEAN

GET INSPIRED

LISTEN TO THE OCEAN

RIO DE JANEIRO

Corona and Parley for the Oceans joined forces to fight plastic pollution in one of the most polluted beaches in Rio de Janeiro, Barra da Tijuca.

Listen to the Ocean is a campaign that imagines the ocean asking for our attention to end plastic pollution. With the help of artists such as Donavon Frankenreiter and Céu, a song for the Barra da Tijuca was created to represent the call for help. Every time the music was shared, 10m² of a beach was cleaned.

The project is part of the global movement by Corona and Parley for the Oceans against plastic pollution.

[Learn More](#)



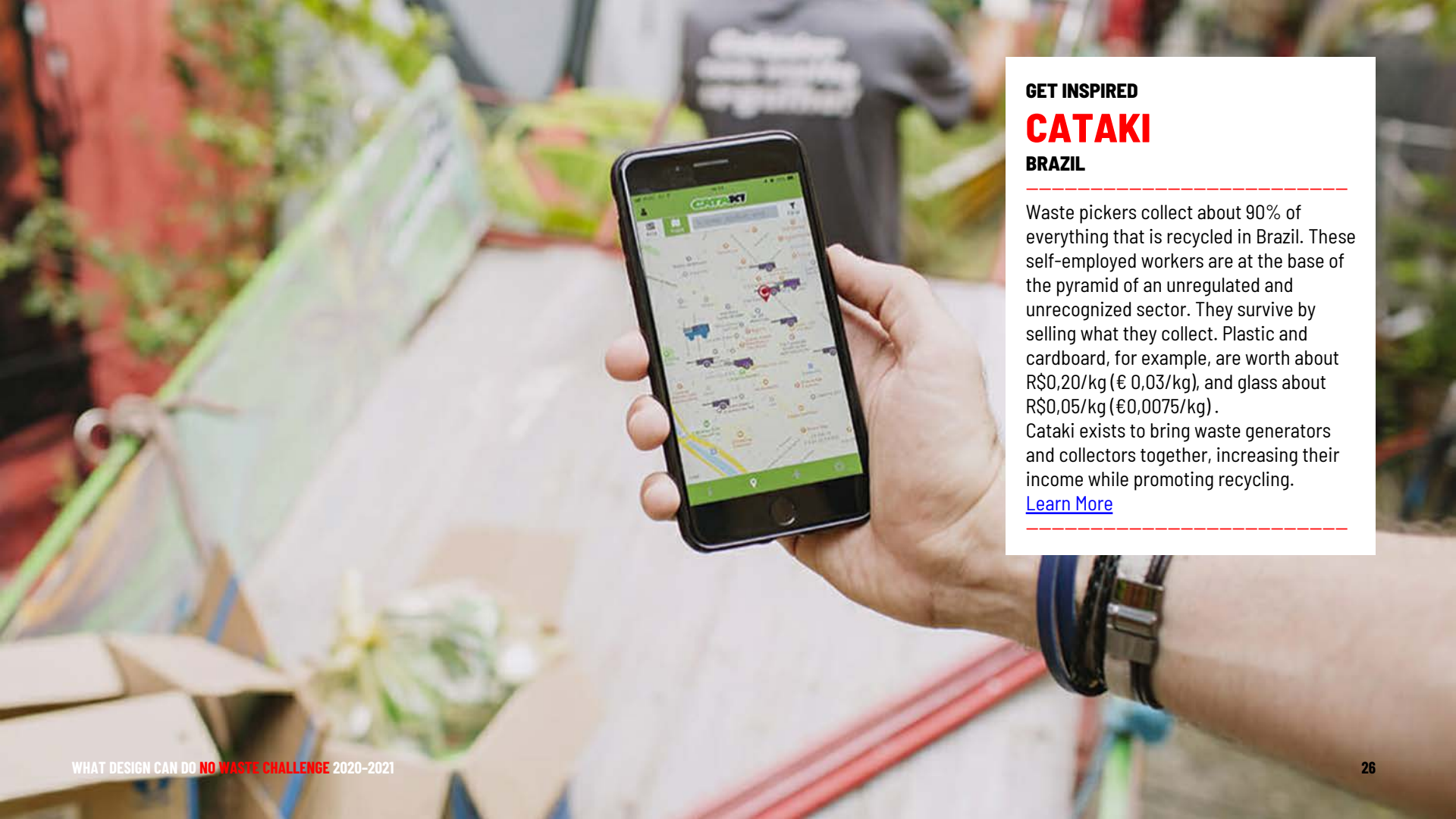
GET INSPIRED

RE.POTE

SÃO PAULO

Re.pote is a solution created with the intention to reduce waste caused by food delivery services. By gathering a network of restaurants that take part in this initiative, consumers are offered the opportunity to choose for reusable packaging option. Re.pote's circular logistics plan then collects, sanitizes and reuses the packaging, reintroducing them into the chain. That way, what was previously single-use plastic can be used up to 300 times before finally being recycled.

[Learn More](#)



GET INSPIRED

CATAKI

BRAZIL

Waste pickers collect about 90% of everything that is recycled in Brazil. These self-employed workers are at the base of the pyramid of an unregulated and unrecognized sector. They survive by selling what they collect. Plastic and cardboard, for example, are worth about R\$0,20/kg (€ 0,03/kg), and glass about R\$0,05/kg (€0,0075/kg).

Cataki exists to bring waste generators and collectors together, increasing their income while promoting recycling.

[Learn More](#)

REFERENCES/LEARN MORE

SOURCES AND FURTHER RESEARCH

Here are the main sources used for creating this briefing:

Socio economic situation of Sao Paulo

[Inequality map of São Paulo](#)

Recycling in Brazil

[Eu Reciclo: Packaging reverse logistics solution](#)

[Hub Incríveis](#)

Circular Economy in Sao Paulo and Brazil

[Cities and circular economy for food - São Paulo \(Ellen Macarthur Foundation\)](#)

[Circular economy in Brazil \(Ellen Macarthur Foundation\)](#)

Lo-TEK Design by Radical Indigenism

<https://www.juliawatson.com>

OCEANA

<https://oceana.org>

Museum of Tomorrow

<https://museudoamanha.org.br>

Infinito Mare

<https://en.infinitomare.com>

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