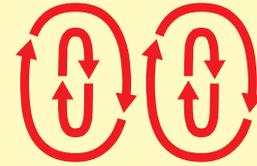




MAKE IT 
CIRCULAR
INDIA

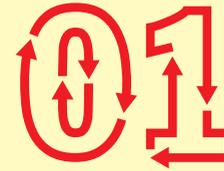
MAKE IT CIRCULAR CHALLENGE



WHAT DESIGN CAN DO MAKE IT CIRCULAR CHALLENGE

WHAT DESIGN CAN DO IS LAUNCHING THE MAKE IT CIRCULAR CHALLENGE IN PARTNERSHIP WITH IKEA FOUNDATION. THIS GLOBAL DESIGN COMPETITION FOCUSES ON BUILDING A CIRCULAR SOCIETY IN ORDER TO COMBAT CLIMATE CHANGE AND TACKLE THE DEVASTATING EFFECTS OF WASTE AND POLLUTION.

WE INVITE DESIGNERS, CREATIVE ENTREPRENEURS AND STARTUPS FROM AROUND THE WORLD TO SUBMIT IDEAS AND INNOVATIONS THAT RADICALLY RETHINK OUR WAY OF LIFE: FROM WHAT WE EAT AND WEAR, TO WHY WE BUY AND HOW WE BUILD. USING THE POWER OF DESIGN, WE CAN MAKE A CIRCULAR FUTURE MORE ACCESSIBLE FOR ALL.



CIRCULARITY IN INDIA

Circularity is not a new idea in the Indian ecosystem and the country is known for its frugal innovation. During our conversations with experts, we found that traditional practices tended to embrace circularity more than contemporary ones.

The current landscape is fragmented, characterized by a lack of cohesive understanding and policy intervention that informs the varied interpretations of circularity. The major focus is only on certain parts of the value chain and not a holistic journey that encompasses production, usage and disposal.

Interventions such as the Swachh Bharat Abhiyan Initiative (also known as Clean India Mission), prioritise solid waste management. These emerging approaches favor entrepreneurial and capital-intensive technical fixes like mechanised waste collection by vehicles and GPS technologies. The downside is that such interventions eliminate the role of India's informal waste workers, and economy associated with it, which contributes to more than 20% of the country's GDP.

Today, India stands at an inflection point in its journey towards economic growth. To balance the adverse effects of rapid urbanisation, industrialisation and a growing population, there is a need to strengthen circularity in meaningful ways.

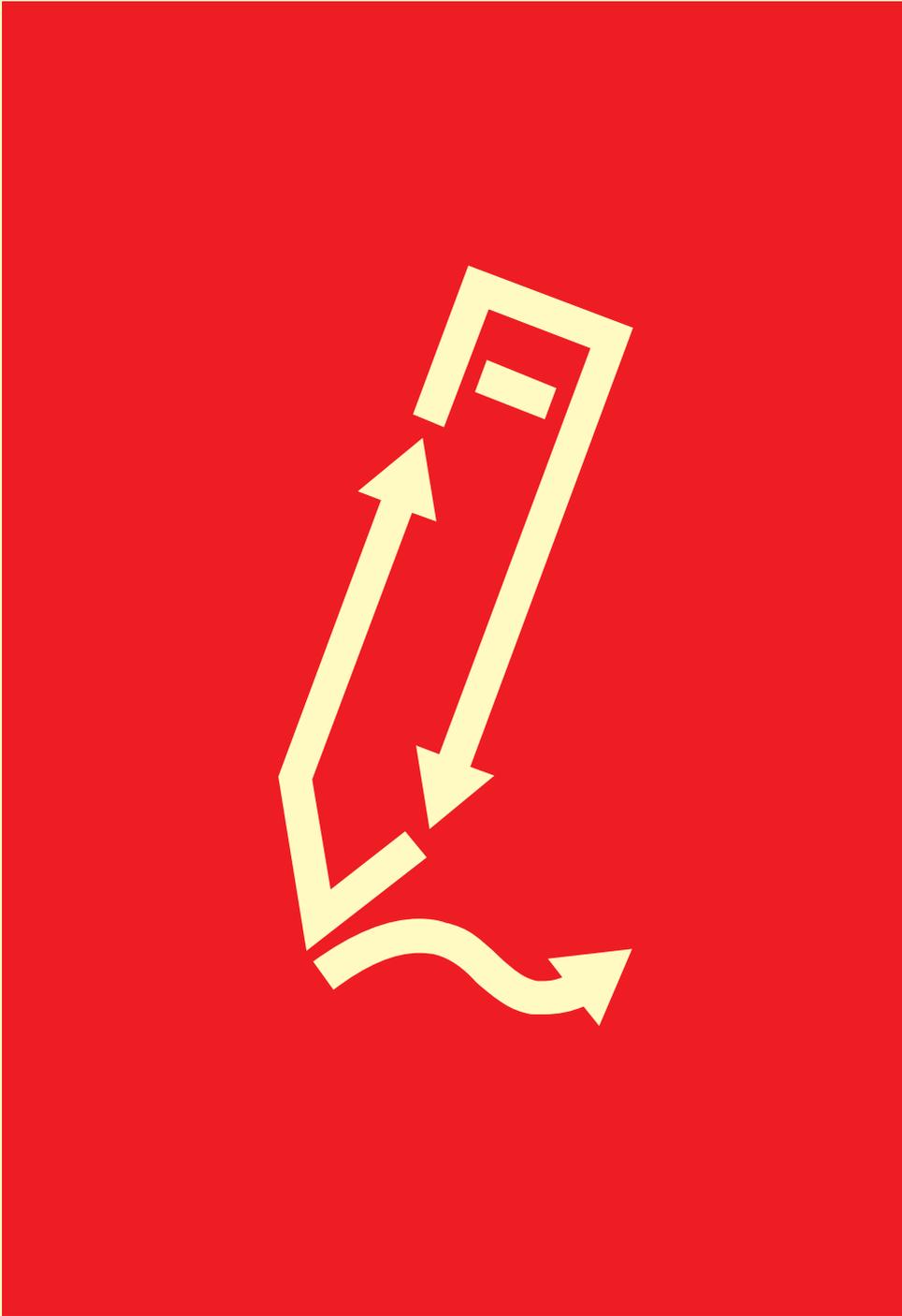
'WASTE' IN INDIA

Indian homes didn't have a dustbin for the longest time – some still don't. Households utilised everything, and never believed in the concept of 'waste'. Even choosing to call it waste brings in a bias – to view it as a problem to solve, rather than a resource.

Today, one-third of India's 1.2 billion people live in urban areas, generating approximately 62 million tonnes of municipal solid waste (MSW) annually. According to NITI Aayog, this number is expected to more than double to 125 million tonnes per year by 2031.

ICONIC CASE OF CIRCULAR SYMBIOSIS

Thousands of small businesses along the alleyways of Dharavi's (one of the largest informal settlements in Asia) manage over 80% of waste of Mumbai. The Dharavi model has become a shining example of waste management: many define it as "a plastic recycling goldmine."



POLICY LANDSCAPE AROUND CIRCULARITY

Circular economy regulations in India are still in nascent stages and tend to focus on interventions at the end-stages of value chains. While the government has been actively trying to drive the country towards a circular economy, most policies and projects focus on the recycling and waste management stages. Some examples include the Plastic Waste Management Rules, e-Waste Management Rules, and Metals Recycling Policy.

Similarly, several initiatives undertaken by NITI Aayog, India's public policy think tank, address the challenges in the utilisation of waste as resource and try to restructure the recycling industry in India.

Some areas of focus have been encouraging the usage of waste products from the steel industry such as fly ash and slag in other sectors, as well as resource efficiency in sectors of steel (with the Ministry of Steel), aluminium (with the Ministry of Mines), construction and demolition (with the Ministry of Housing and Urban Affairs) and e-waste (with the Ministry of Electronics and Information Technology).

A more holistic vision that includes policy on product design, lifestyle extension and more, is yet to be developed. For example, in 2020, the MoEFCC (Ministry of Environment, Forest and Climate Change) mandated manufacturers to take responsibility over materials used in their products beyond the sale phase, but didn't ask them to factor in environmental costs at the production stage.

Moreover, while there has been some movement towards formulating policy frameworks for a circular economy transition, these are yet to be evolved into action plans.



WHERE
DESIGN IS
NEEDED /
WHAT
DESIGN
CAN DO

WHAT WE EAT



Agriculture forms the backbone of the Indian economy, and provides a means of livelihood for 58% of rural households. There is a significant level of food waste and food loss at various stages of the product cycle.

India is currently witnessing an increase in the demand for food the average-per-capita calorie intake is rising. It is also estimated that 50% of our population will soon live in urban areas. Despite this, there is little effort to implement urban agricultural practices, or introduce better storage facilities, which could reduce excessive food transportation, and subsequently, decrease food waste and food loss. At the consumption stage, biological nutrients often end up as household or industrial waste. Practices such as composting could recover and repurpose these nutrients, creating a circular model.

"In India, a majority of food loss happens between production to sales stages (~90%) and only 10% occurs at the consumption stage." *Source: The Food and Agricultural Organisation*

FERTILIZER INTENSITY: India uses ~165 kgs of fertilizer per hectare of arable land, which is considerably higher than the global average of ~138. This leads to soil degradation and leakages in the nutrient cycle. The practice of burning crop residues adds to this challenge, leading to a loss of nutrients from the topsoil layer. *Source: Accelerating India's Circular Economy Shift: FICCI*

KNOWING ONE'S FOOD: Food waste used to be minimal or even non-existent. Leftover vegetables often became dishes like chorchori* at the end of the week, leftover rice was fermented, and vegetable peels became condiments. An understanding of what was being consumed allowed households to make informed and creative decisions that reduced wastage significantly.

FOOD VALUE CHAIN

The Food and Agricultural Organisation (FAO) estimated that 40% of the food produced in India is wasted every year due to fragmented food systems and inefficient supply chains, even before the food reaches the consumer. Inside the home, about 50

kgs of food per person is thrown away annually.

INEFFICIENT SUPPLY CHAINS

Indian farmers incur Rs 926.5 billion (92651 crore) per year in post-harvest losses, caused primarily by poor storage and transportation facilities. The lack of connectivity often prevents their harvest from reaching markets in time, lowering the farmers' ability to monetise their produce.

URBAN FARMING

Lack of urban farming options such as hydroponics, vertical farming and aquaponic farming in cities continue to increase the cost of food transport and additional costs.

DISCONNECT FROM FOOD

Traditionally, Indian households found creative ways to repurpose food waste. This came from an expansive knowledge of food that was often inherited within communities and helped people develop a strong understanding of the different ingredients used. A growing distance between urban consumers and food has led to much of this knowledge being lost.

MARKET PRACTICES

A shift towards online grocery shopping and increasing reliance on supermarkets has led to a culture of bulk-buying. While this boosts consumption and sales, it also leads to significant amounts of wastage. Moreover, this has also led to a homogenization in varieties of food available to consumers, leading to damaging agricultural practices.

OPPORTUNITIES

- Introduce urban agricultural practices into urban spaces
- Educate consumers and producers about the waste they are producing and how to make better use of the food they are buying
- Emphasise inclusivity of various communities when scaling food production
- Make knowledge of policy interventions and government schemes more accessible to people on the ground

WHAT WE

WEAR



India is one of the largest producers of cotton in the world and is also rich in resources of fibers like polyester, silk, viscose etc. However, polyester, which cannot be recycled and is not biodegradable, dominates the industry with a 65% share of the materials produced.

While there are many small businesses trying to make sustainable clothing, the industry poses a huge environmental threat. 50–100 litres of water is necessary for the handling of a kilogram of textiles. A huge amount of effluent is produced during textile processing and is often released onto land and water bodies without being treated. Moreover, textile manufacturers often use non-biodegradable chemicals.

At the consumer end, an ever-increasing demand for new clothing and fast-fashion, along with fragmented recycling mechanisms, leads to 1 million tonnes of textiles being thrown away yearly.

"Textile waste is the 3rd largest source of municipal solid waste in India, implying that most of this waste ends up at landfills rather than with recyclers."
Source: Circular Apparel Innovation Factory

A GLOBAL CONSUMER HUB: India is the world's second largest exporter of textile and fabric, which accounts for about 13% of its total export earnings. It produces a large volume of pre-consumer waste during the production of these exports. In addition, as more global brands enter India, it is also becoming a global consumption hub, where post-consumer waste is rocketing.

REUSING FABRICS: Many traditional textile techniques, such as Kantha from West Bengal, and Sujani embroidery from Bihar, recycle and reuse old sarees, pants and other household cloth to create quilts and garments.

REDEFINING FASHION

Of the 1 million tonnes of textiles thrown away every year in India, much comes from household sources.

FAST FASHION

Fast fashion, with the backing of large media houses and advertising agencies, has created a concept of fashion that is constantly changing, reducing the perceived value of products as they become 'outdated' or 'out of fashion'. Smaller sustainable businesses do not have the funding or means to combat this perception and alter what it means to be fashionable.

MAKING TRADITIONAL FORMS SUSTAINABLE

While local textile crafts typically use fewer toxic materials, and support local businesses, the fabrics produced are often prone to fading. The lack of long-lasting or contemporary prints and cuts, could mean consumers are quicker to ignore them or to quickly discard garments.

CLEANER PRODUCTION

Manufacturing processes often include toxic chemicals and effluents which are damaging in the long run, even after the product is discarded. There is very little policy intervention that combats such practices.

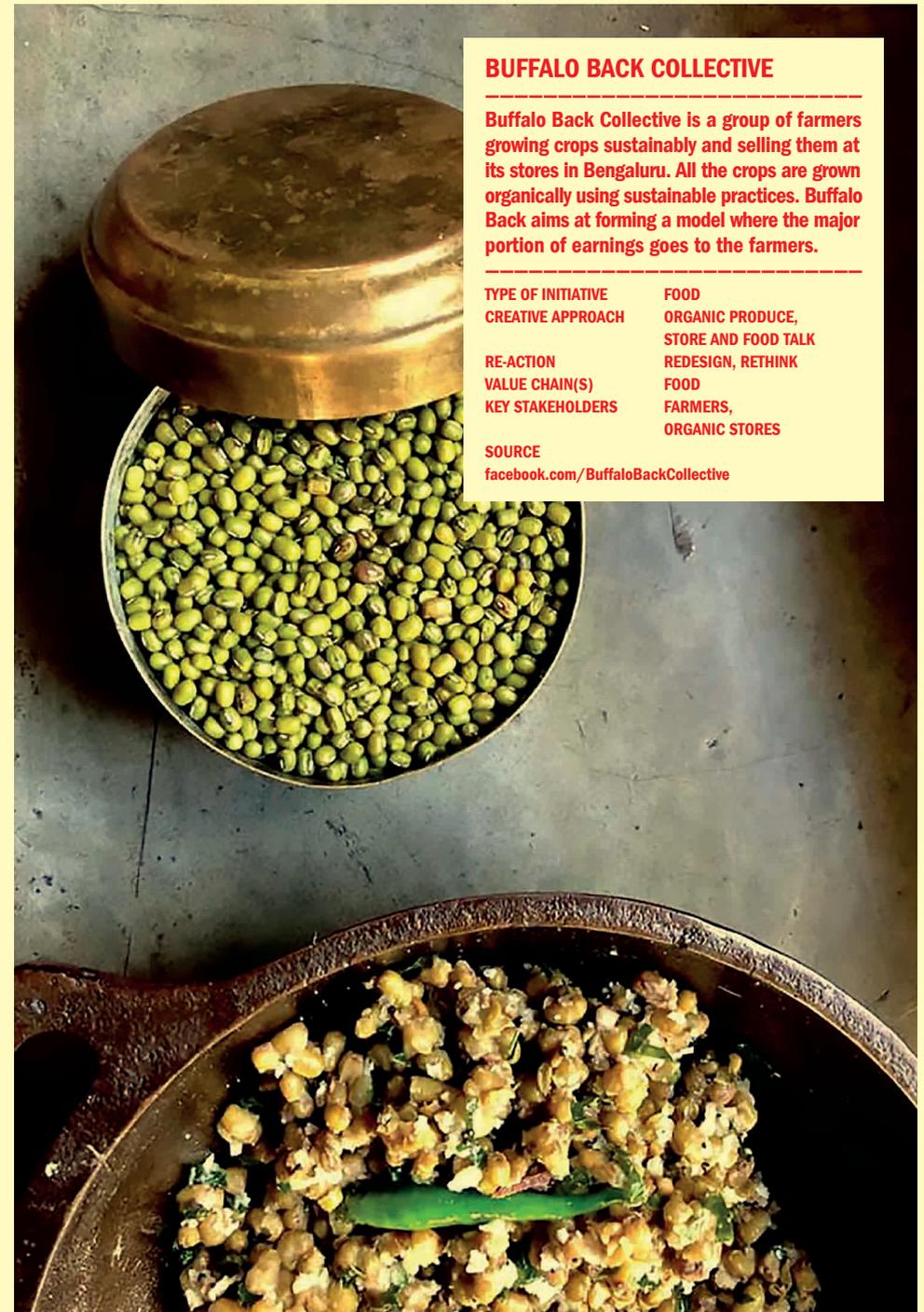
INACCESSIBLE TO MANY

Due to higher production costs, ethical fashion is often priced higher than fast fashion, and is inaccessible to many who cannot afford it.

OPPORTUNITIES

- Adapt sustainable methods of clothes production so that they can be produced in factories and have lasting quality
- Ensure that textile waste ends up being recycled
- Encourage consumers to not to aspire towards constant novelty in fashion

HOW IT COULD BE DONE



BUFFALO BACK COLLECTIVE

Buffalo Back Collective is a group of farmers growing crops sustainably and selling them at its stores in Bengaluru. All the crops are grown organically using sustainable practices. Buffalo Back aims at forming a model where the major portion of earnings goes to the farmers.

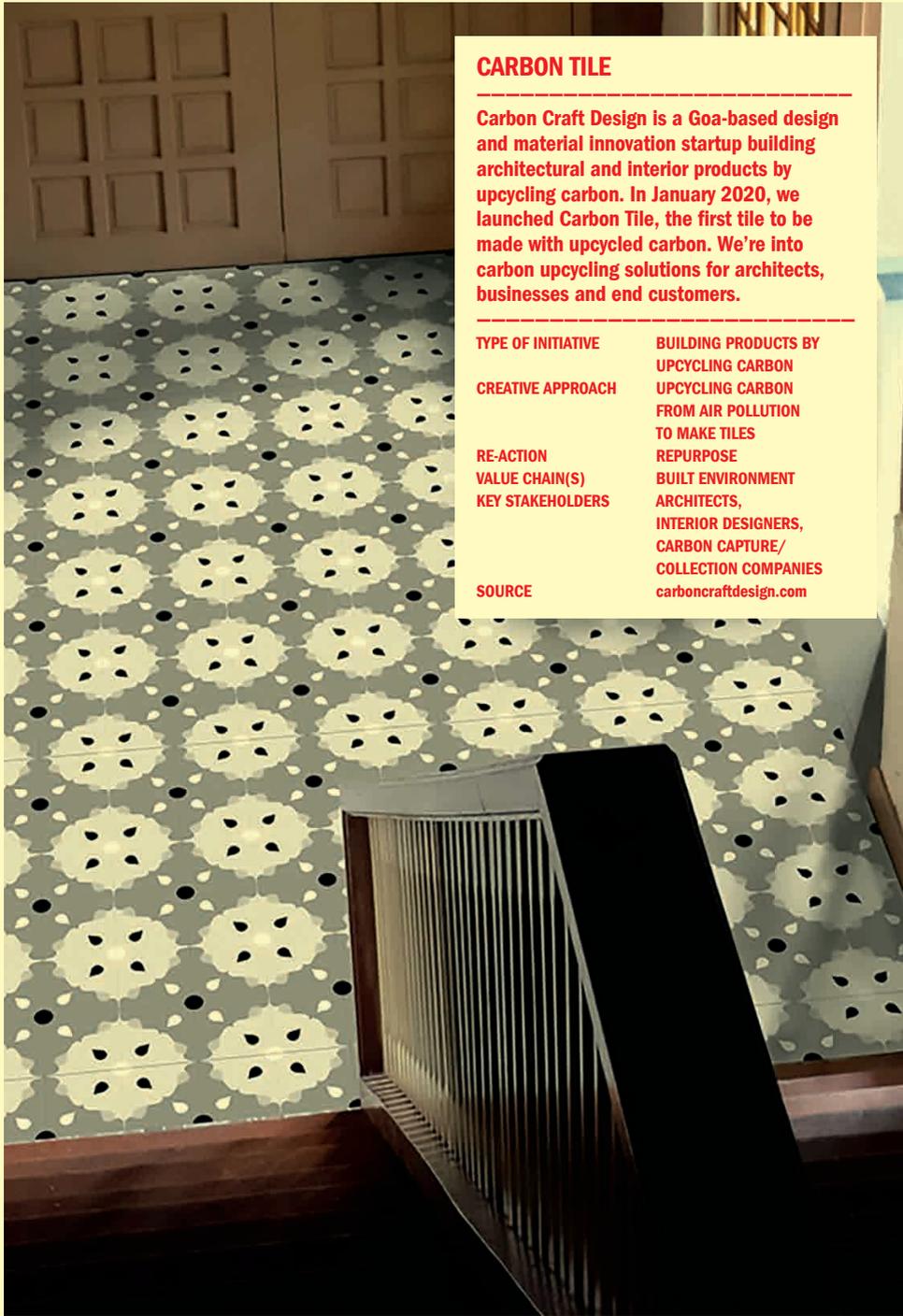
TYPE OF INITIATIVE
CREATIVE APPROACH

FOOD
ORGANIC PRODUCE,
STORE AND FOOD TALK

RE-ACTION
VALUE CHAIN(S)
KEY STAKEHOLDERS

REDESIGN, RETHINK
FOOD
FARMERS,
ORGANIC STORES

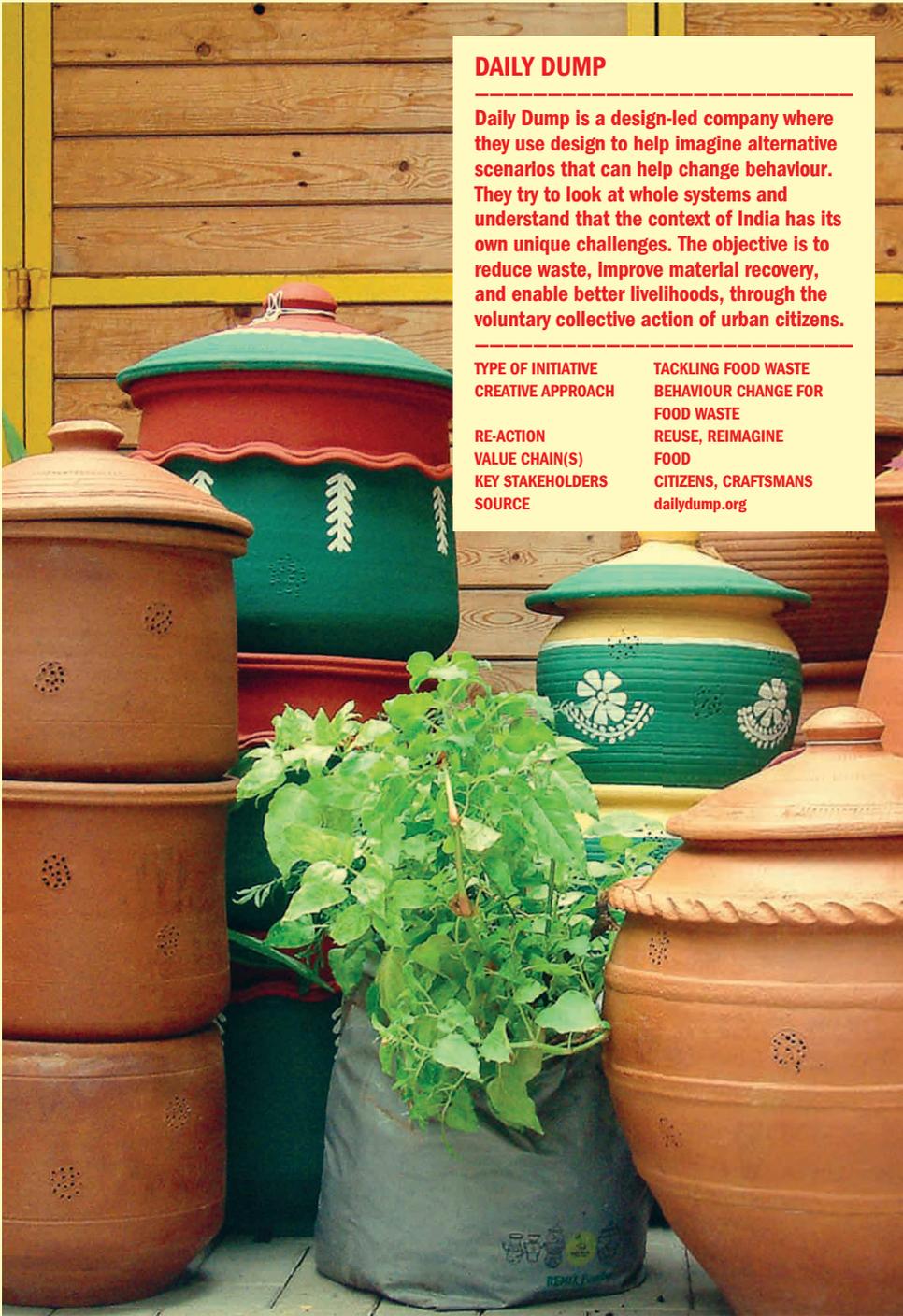
SOURCE
facebook.com/BufaloBackCollective



CARBON TILE

Carbon Craft Design is a Goa-based design and material innovation startup building architectural and interior products by upcycling carbon. In January 2020, we launched Carbon Tile, the first tile to be made with upcycled carbon. We're into carbon upcycling solutions for architects, businesses and end customers.

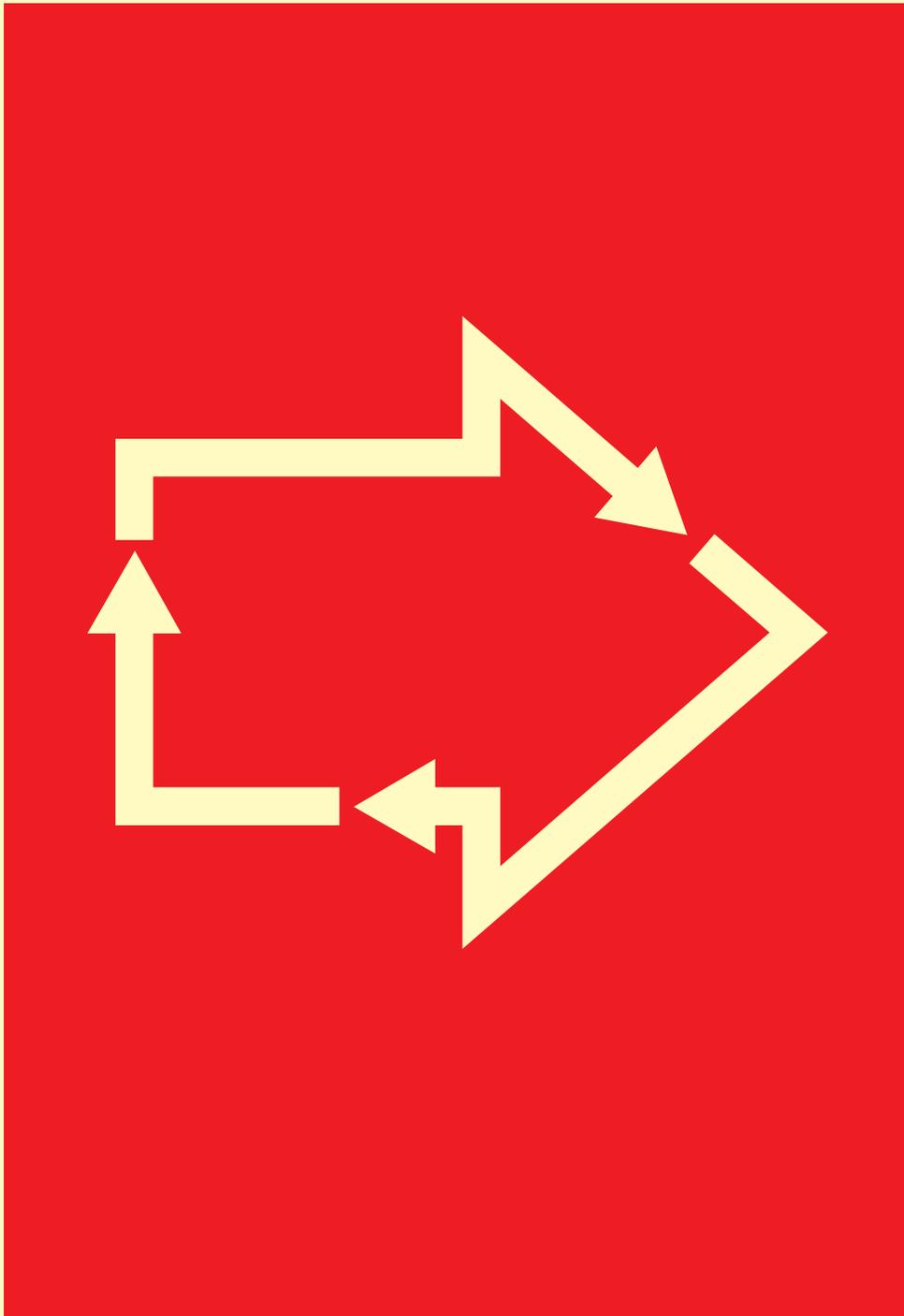
TYPE OF INITIATIVE	BUILDING PRODUCTS BY UPCYCLING CARBON
CREATIVE APPROACH	UPCYCLING CARBON FROM AIR POLLUTION TO MAKE TILES
RE-ACTION	REPURPOSE
VALUE CHAIN(S)	BUILT ENVIRONMENT
KEY STAKEHOLDERS	ARCHITECTS, INTERIOR DESIGNERS, CARBON CAPTURE/ COLLECTION COMPANIES
SOURCE	carboncraftdesign.com



DAILY DUMP

Daily Dump is a design-led company where they use design to help imagine alternative scenarios that can help change behaviour. They try to look at whole systems and understand that the context of India has its own unique challenges. The objective is to reduce waste, improve material recovery, and enable better livelihoods, through the voluntary collective action of urban citizens.

TYPE OF INITIATIVE	TACKLING FOOD WASTE
CREATIVE APPROACH	BEHAVIOUR CHANGE FOR FOOD WASTE
RE-ACTION	REUSE, REIMAGINE
VALUE CHAIN(S)	FOOD
KEY STAKEHOLDERS	CITIZENS, CRAFTSMANS
SOURCE	dailydump.org



REF. / LEARN MORE

GENERAL READINGS

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<https://www.businesstoday.in/opinion/columns/story/putting-india-on-an-accelerated-path-to-build-a-circular-economy-325489-2022-03-10>
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<https://www.joinpaperplanes.com/why-we-need-more-on-consumption/>
- **Circular Economy in India: Rethinking growth for long-term prosperity – Ellen MacArthur Foundation**
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FOOD

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https://ficcices.in/pdf/FICCI-Accenture_Circular%20Economy%20Report_OptVer.pdf

TEXTILES

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<https://reports.fashionforgood.com/report/state-of-the-circular-innovations-in-the-indian-fashion-and-textile-industry/chapterdetail?reportid=181&chapter=7#:~:text=Our%20research%20has%20shown%20that,landfills%20rather%20than%20with%20recyclers.>
- **Where Does Textile Waste Go?**
<https://circularapparel.co/blog/2020/07/13/where-does-textile-waste-go/>

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- **Sustainable Construction Waste Management in India – Earther**
<https://earth5r.org/sustainable-construction-waste-management-india/>
- **Construction Materials and C&D Waste in India – University of Florida**
<https://www.irbnet.de/daten/iconda/CIB14286.pdf>

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IT'S
FREEZING
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SLANTED



state of
fashion

BRAZIL

MANDACARU



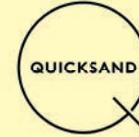
Reino dos Países Baixos

QUESTIONÓ
Manyone

Flutter
innovation



INDIA



Kingdom of the Netherlands



JAPAN



SHIBAURA HOUSE



Kingdom of the Netherlands



Kenya
Climate
Innovation
Center

matchboxology



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THE NETHERLANDS

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board

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Amsterdam

NH Provincie
Noord-Holland

metropool
regioamsterdam

MEXICO

WHAT DESIGN CAN DO MEXICO

GNP
SEGUROS



Nestlé



Reino de los Países Bajos

ÓRBITA



delaO



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CIUDAD DE MÉXICO



SECRETARÍA DEL
MEDIO AMBIENTE

IBERO
CIUDAD DE MÉXICO

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