



# **Circular Economy: Reducing Consumption while strengthening the economy**

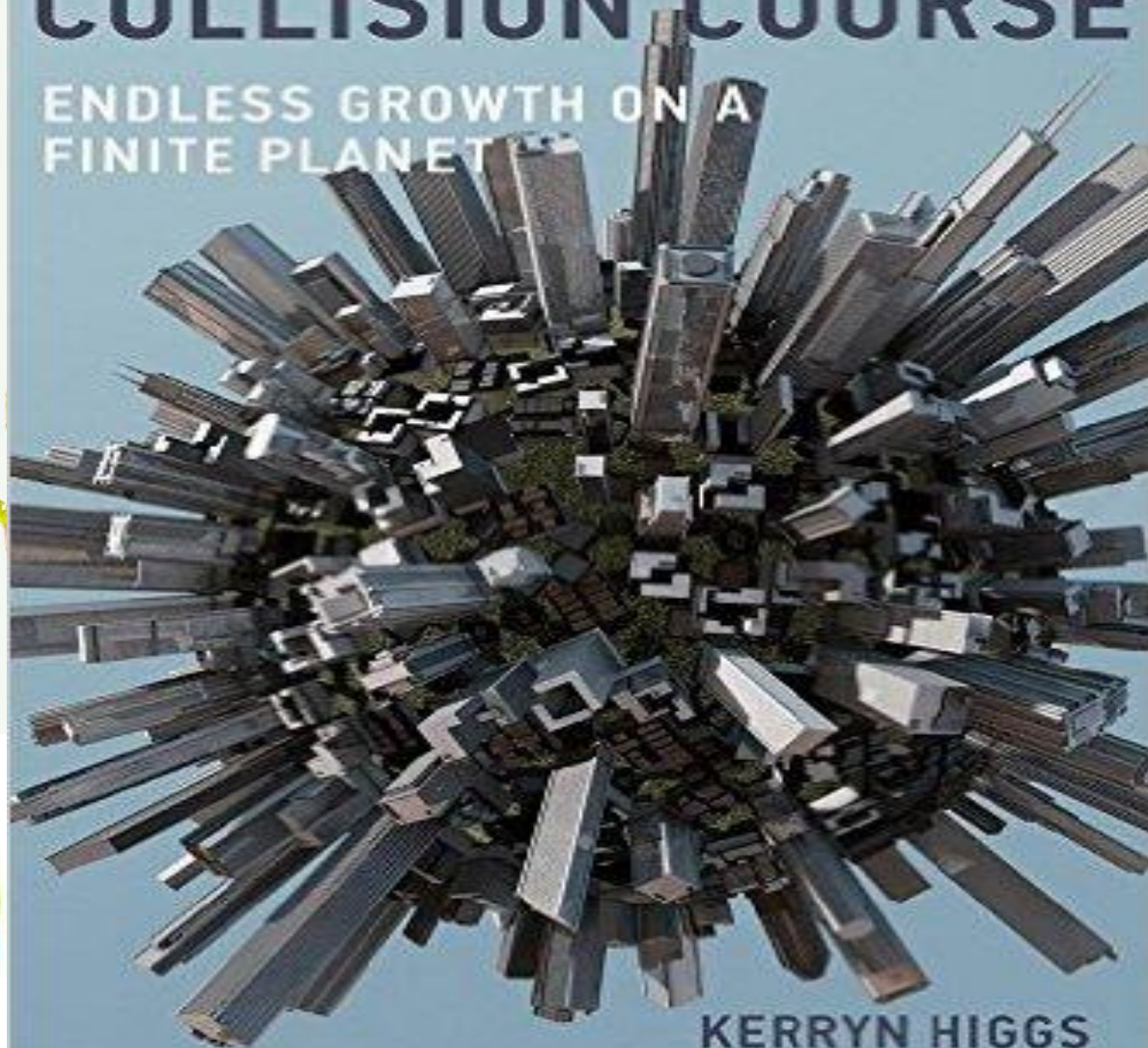
Debbie O'Byrne  
Circular Economy Principal, Beca  
Co-Founder, Planet Price

# DISRUPTI

Perfect Day  
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# COLLISION COURSE

ENDLESS GROWTH ON A  
FINITE PLANET



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## HOW WE MAKE PER PROTEINS WITH



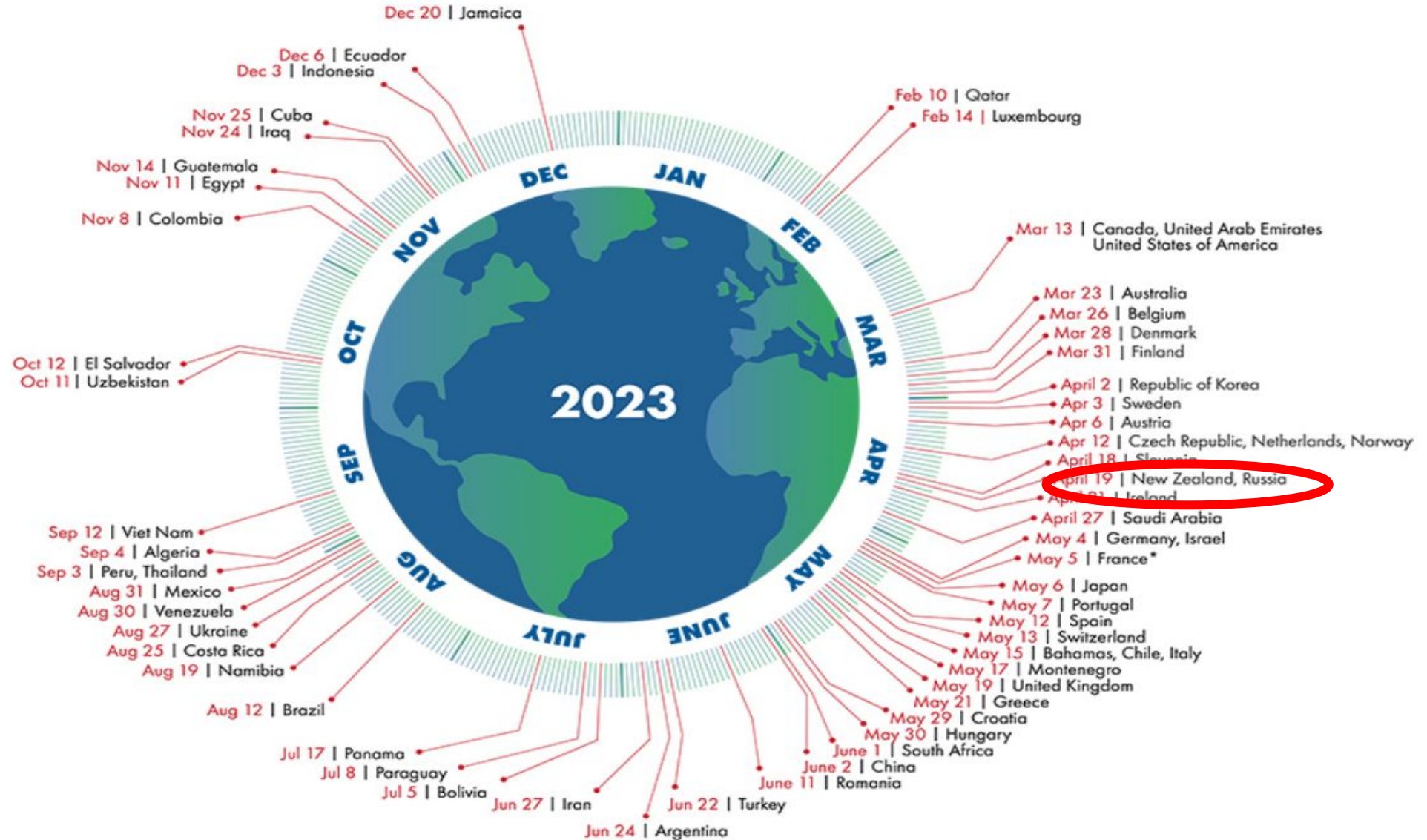
At Perfect Day, we're making dairy proteins – whey and casein – that are nutritionally identical to proteins from cow's milk. All it takes is human curiosity about what makes milk... well, milk... along with modern science and the age-old art of fermentation.





# Country Overshoot Days 2023

When would Earth Overshoot Day land if the world's population lived like...



# Visualizing the Scale of Anthropogenic Mass

Anthropogenic mass, or human-made mass, refers to the materials embedded within inanimate solid objects that are made by humans.

In 2020, the amount of anthropogenic mass exceeded the weight of all global living biomass.

As humans continue to dominate Earth, questions surrounding our material output are increasing. We break down the composition of all human-made materials and the rate of their production.

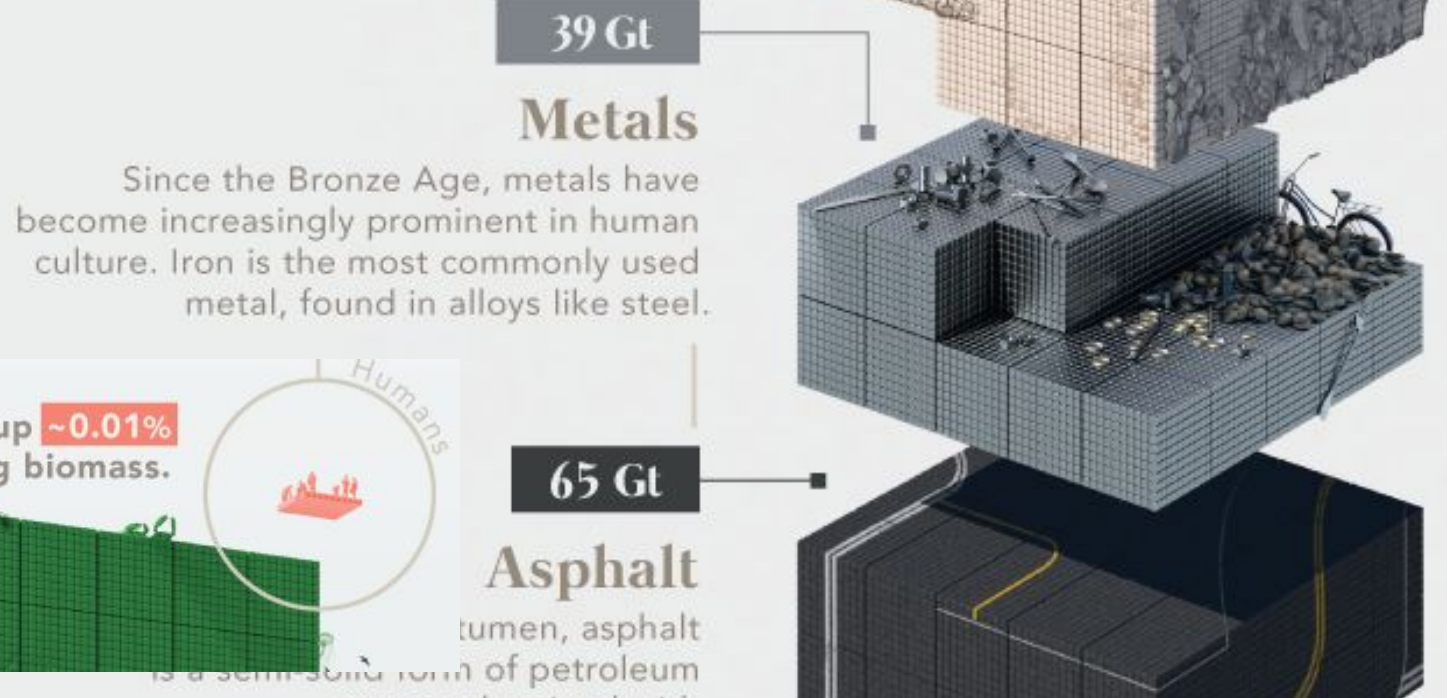
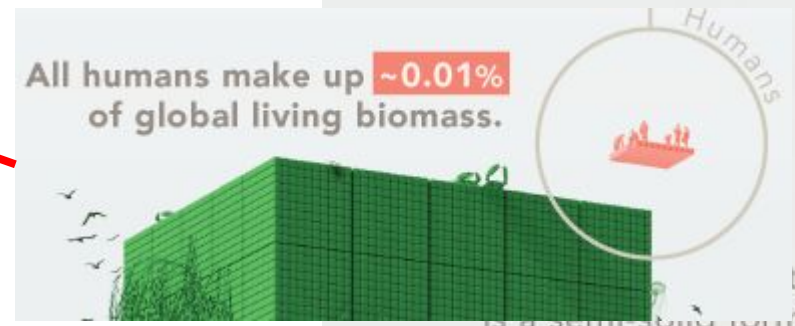
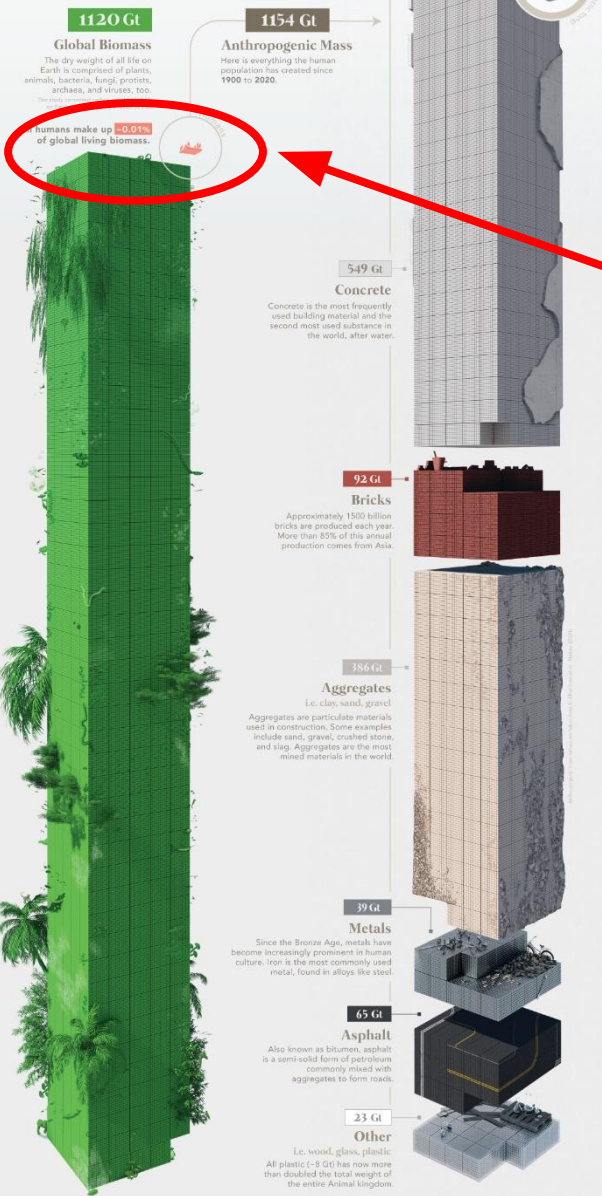


Image attributed to Visual Capitalist

<https://www.visualcapitalist.com/visualizing-the-accumulation-of-human-made-mass-on-earth/>

# Visualizing the Scale of Anthropogenic Mass

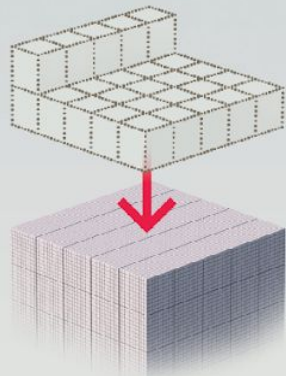
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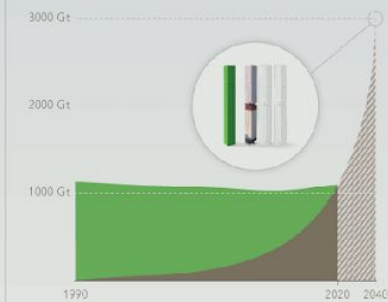
## The Accumulation of Anthropogenic Mass

The current rate of accumulation for human-made mass is approximately **30 Gt of mass per year**.

This is equal to each person on Earth producing their own weight in human-made mass every week.



As accumulation rates increase, the amount of human-made mass is predicted to almost **triple the total amount of global living biomass** by 2040.



These trends highlight the alarming speed and volume in which human contributions are impacting the world.

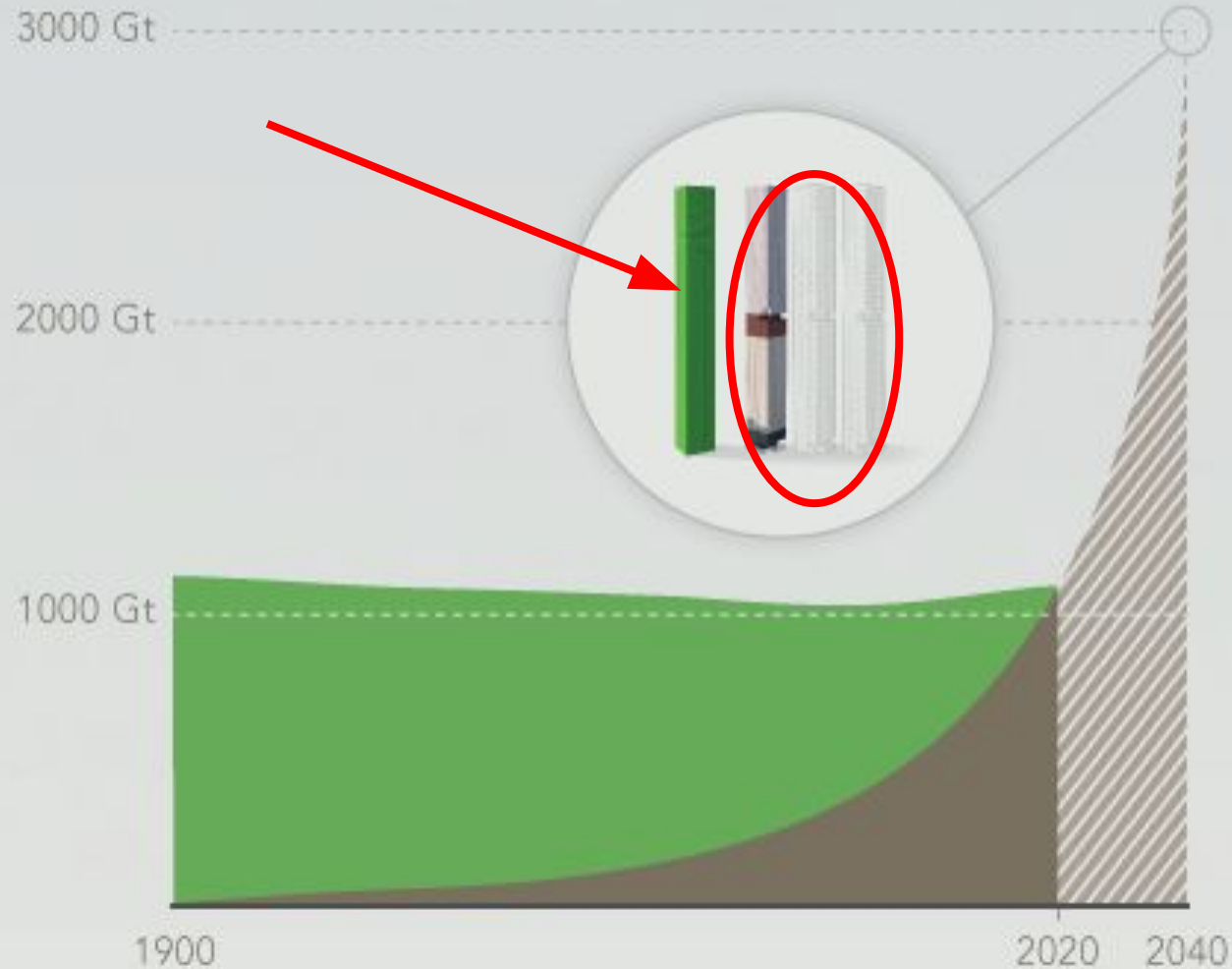
SOURCE: Pfucham, G., Bee-Lin, L., Grogowski, J., Bai-Ou, Y.M., Mills, R., 2020. Global human-made mass exceeds all living biomass. Nature 578, 442-444. doi:10.1038/s41586-020-3010-5



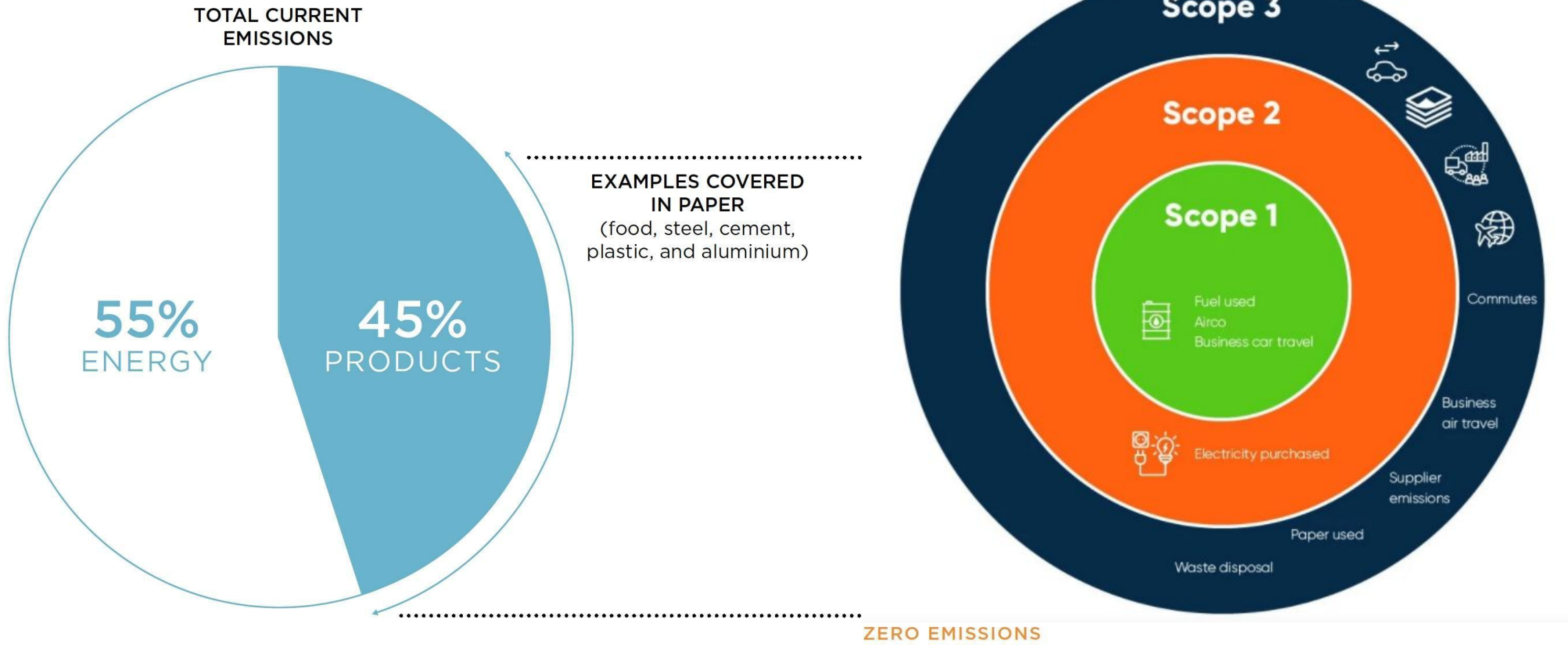
COLLABORATORS | RESEARCH + WRITING: Bruno Venditti | ART DIRECTION & DESIGN: Mark Bletan

visualcapitalist.com

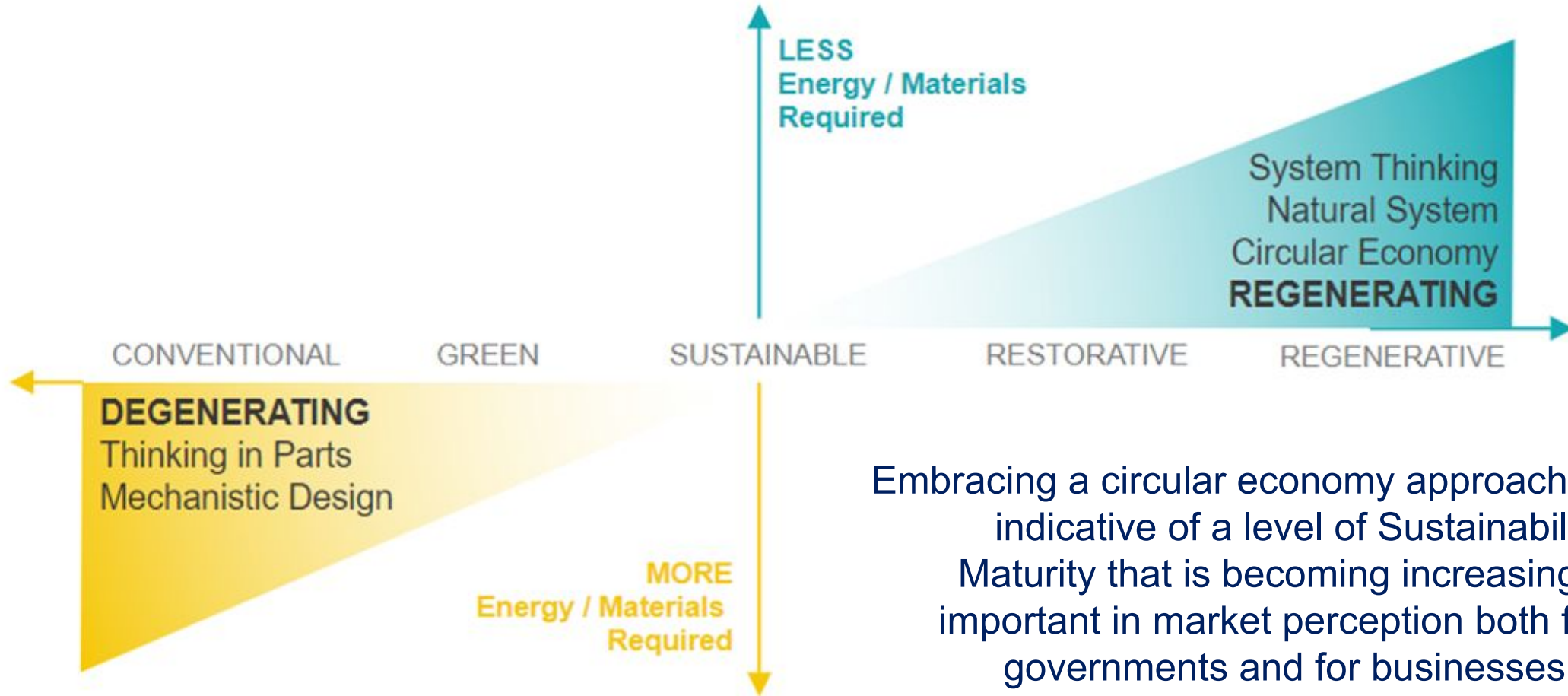
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## COMPLETING THE PICTURE: TACKLING THE OVERLOOKED EMISSIONS

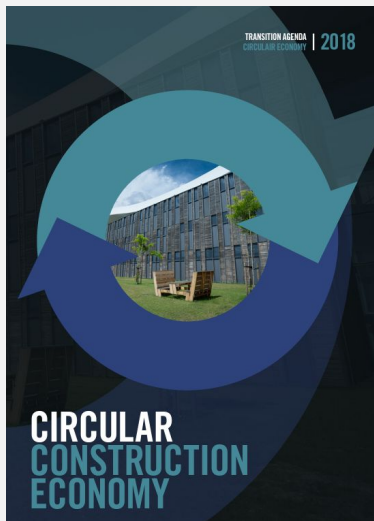
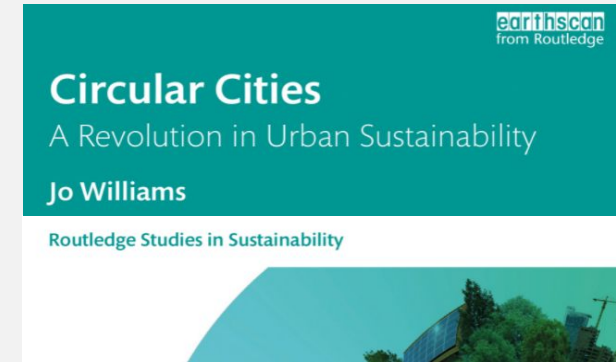
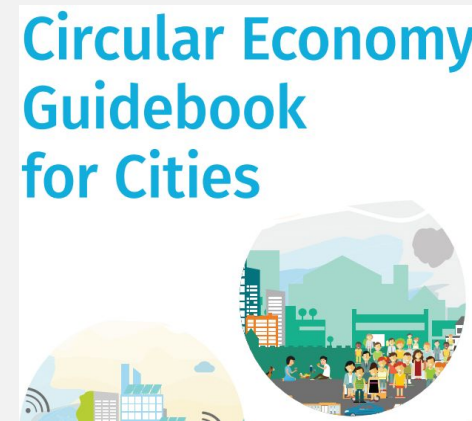
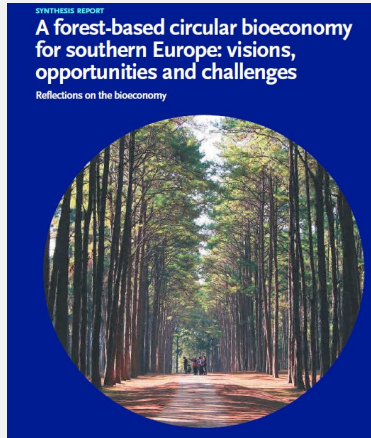
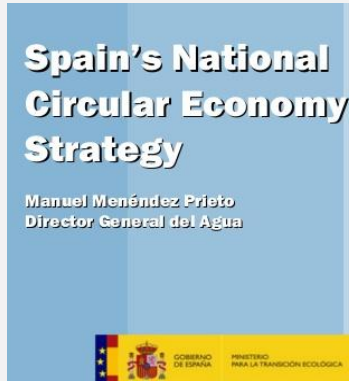


# Sustainability Maturity Matrix



Embracing a circular economy approach is indicative of a level of Sustainability Maturity that is becoming increasingly important in market perception both for governments and for businesses in attracting investment and maintaining a social licence to operate.

# Rate & Scale of Change





# The Circular Economy

## Linear Economy

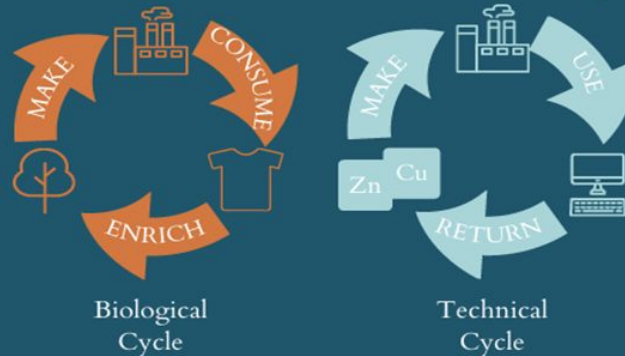


Technical & biological materials mixed up

Energy from finite resources

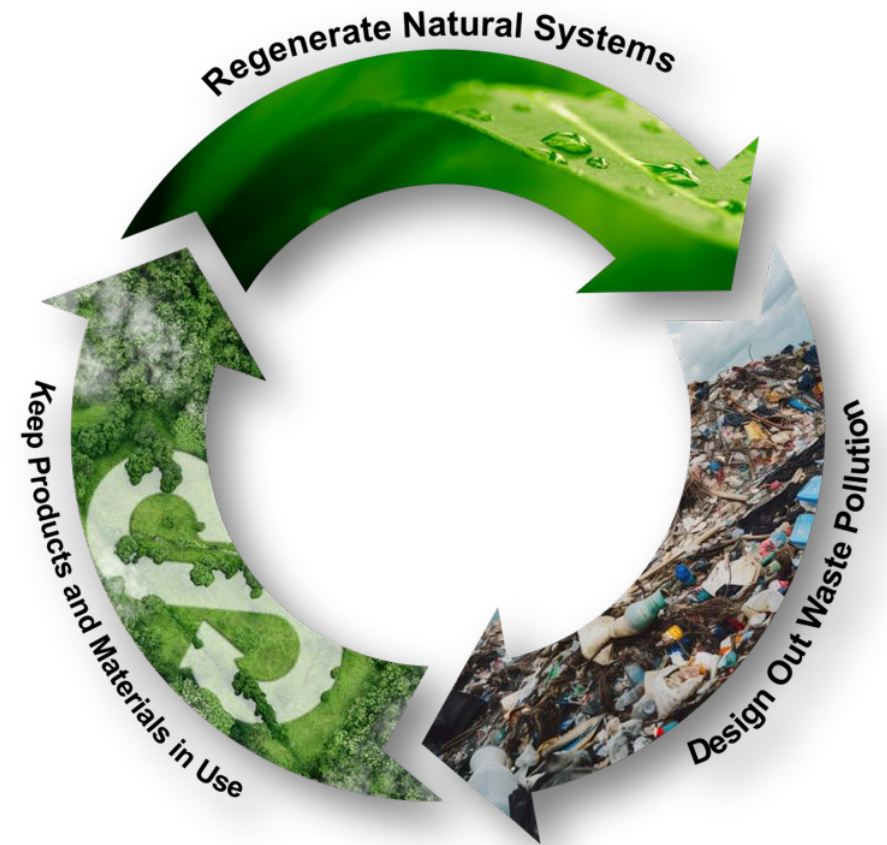
Cradle to *Grave*  
*Waste* to Landfill  
 Single use - Disposable  
 Thinking in *silos* - eg: GDP, \$\$  
 Short term *efficiency*  
 Powered by *fossil fuel*  
 Revenue = Volume + **Consumption**

## Circular Economy



Energy from renewable sources

Cradle to *Cradle*  
*Design* out waste  
 Cascade - multiple *cycles*  
 Thinking in *systems* - eg: SDG, IR  
 Long term *Resiliency*  
 Powered by *Renewables*  
 Revenue = Value + **Performance**



# The Triple Planetary Crisis



Putting  
Circular at  
the Heart of  
What We Do



# National Drivers

## OUR GOALS

Aotearoa has a circular economy with a thriving bioeconomy by 2050.

## Advanced Manufacturing Industry Transformation Plan

Consultation Draft – Thematic Workshop

Priority 5: Creating a leading sustainable circular net-zero emissions sector

## Te hau mārohi ki anamata

### Towards a productive, sustainable and inclusive economy

AOTEAROA NEW ZEALAND'S FIRST EMISSIONS REDUCTION PLAN

Ch. 2  
Empowering Māori

Ch. 3  
Equitable transition

Ch. 4  
Working with nature

A productive, sustainable and inclusive economy

System settings

Ch. 5  
Emissions pricing

Ch. 6  
Funding and finance

Ch. 7  
Planning and infrastructure

Ch. 8  
Research, science, innovation and technology

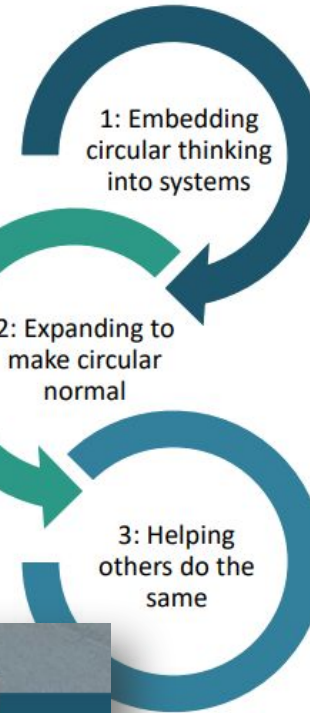
Ch. 9  
Circular economy and bioeconomy

## Circular economy and bioeconomy Strategy

## Te rautaki para Waste strategy

Getting rid of waste for a circular Aotearoa New Zealand

# Ōhanga āmiomio Circular economy



NEW ZEALAND  
INFRASTRUCTURE  
COMMISSION  
Te Waihanga

## Rautaki Hanganga o Aotearoa

New Zealand  
Infrastructure Strategy

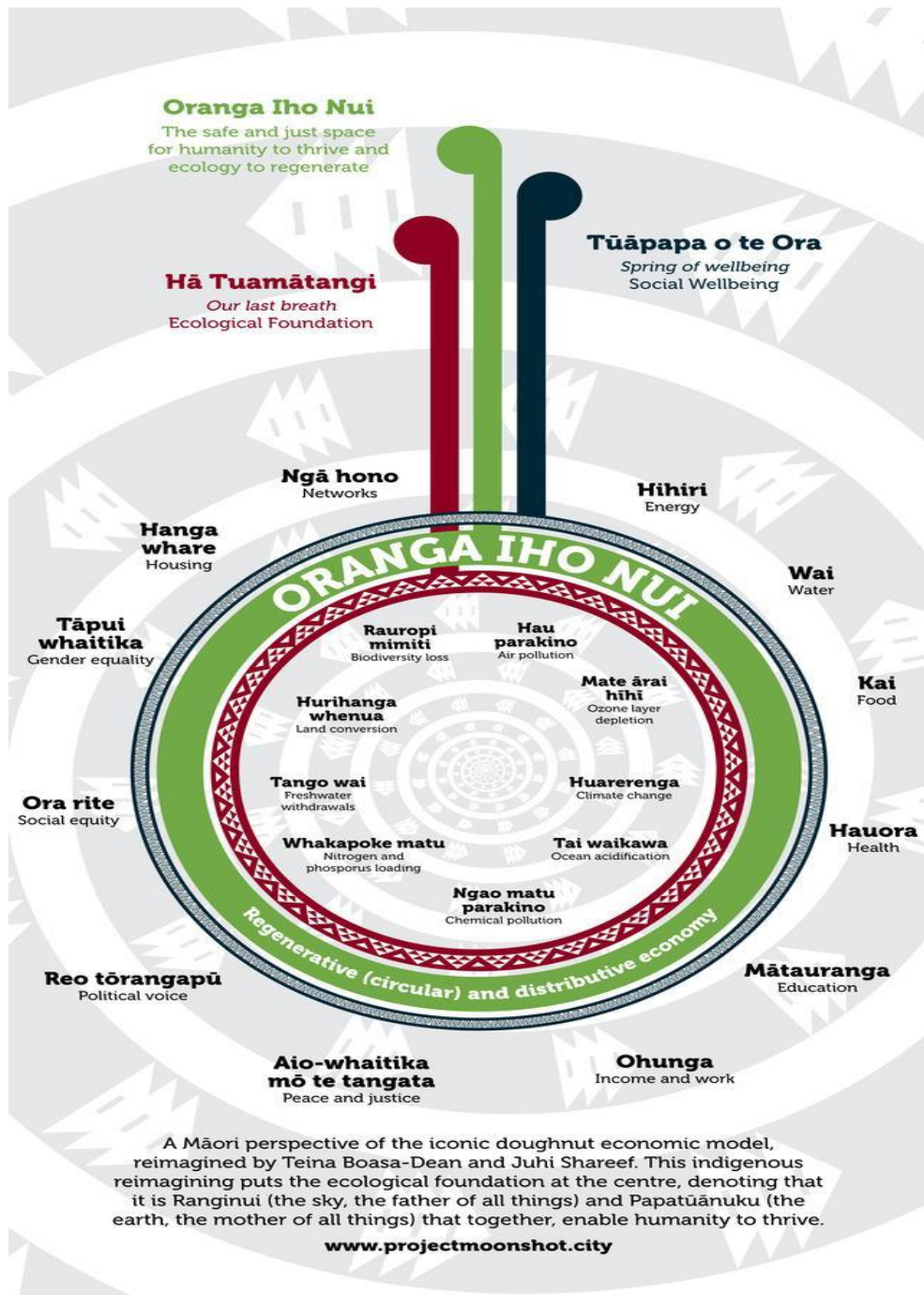
Moving to a Circular Economy is one of 5 key focus areas – including strengthening partnerships with Māori

## Our Goals

Aotearoa has a circular economy with a thriving bioeconomy by 2050

## Circular - 106 mentions in the ERP document

<b>Commence</b>	Commence a circular economy and bioeconomy strategy
<b>Move</b>	Move to a more circular public sector
<b>Enable</b>	Enable Māori to shape & benefit from transition to a circular economy and thriving bioeconomy
<b>Integrate</b>	Integrate circular practices across government, communities and businesses
<b>Support</b>	Support businesses moving to circular economy models
<b>Investigate</b>	Investigate a circular economy hub
<b>Accelerate</b>	Accelerate sustainable and secure supply and uptake of bioenergy in Aotearoa
<b>Co-create</b>	Co create “circular missions” or climate innovation platforms that use mission-led innovation



# Ōhanga āmiomio

# Circular economy

Ministry for the Environment  
Manatū Mō Te Taiao



A circular economy for the wellbeing of Aotearoa New Zealand

# Circular Economy Solutions

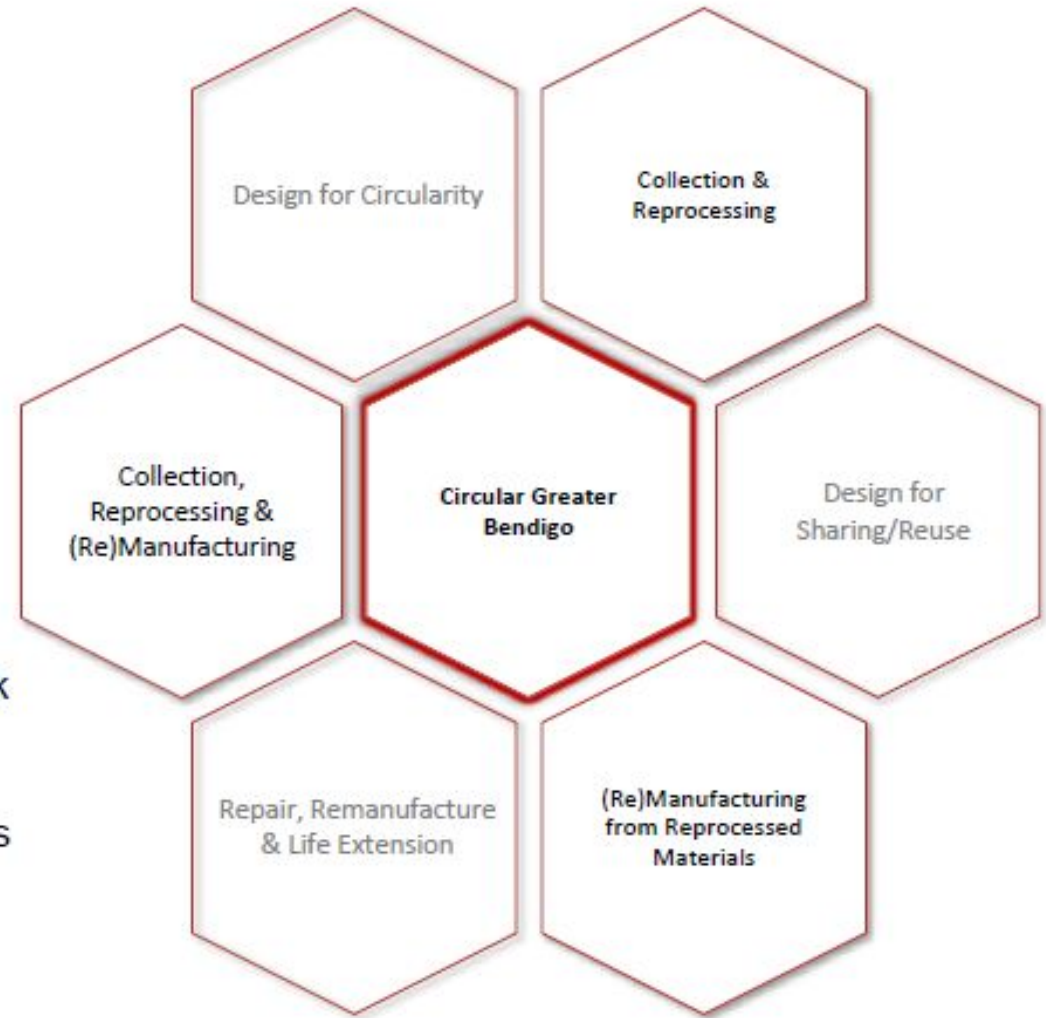
There are roughly 6 types of circular economy solution, split between 'upstream' and 'downstream' areas of the economy:

Upstream (i.e. "business' approach to materials & waste") –

- i. Product/service design for circularity
- ii. Design for sharing/reuse business models
- iii. Product repair, remanufacture and life-extension

Downstream (i.e. "waste") –

- iv. Collection and reprocessing of a material stream
- v. Use of recovered and reprocessed materials as a feedstock for new production/ cascades of production (as with organics)
- vi. Collection, reprocessing and subsequent use of materials as feedstock for new productions/cascades of production



CITY OF GREATER  
**BENDIGO**

## Kolmenkulma



## Envitech



## Taraste



CircHubs

# Circular economy hubs

## Patokangas industrial area



## Hiedanranta

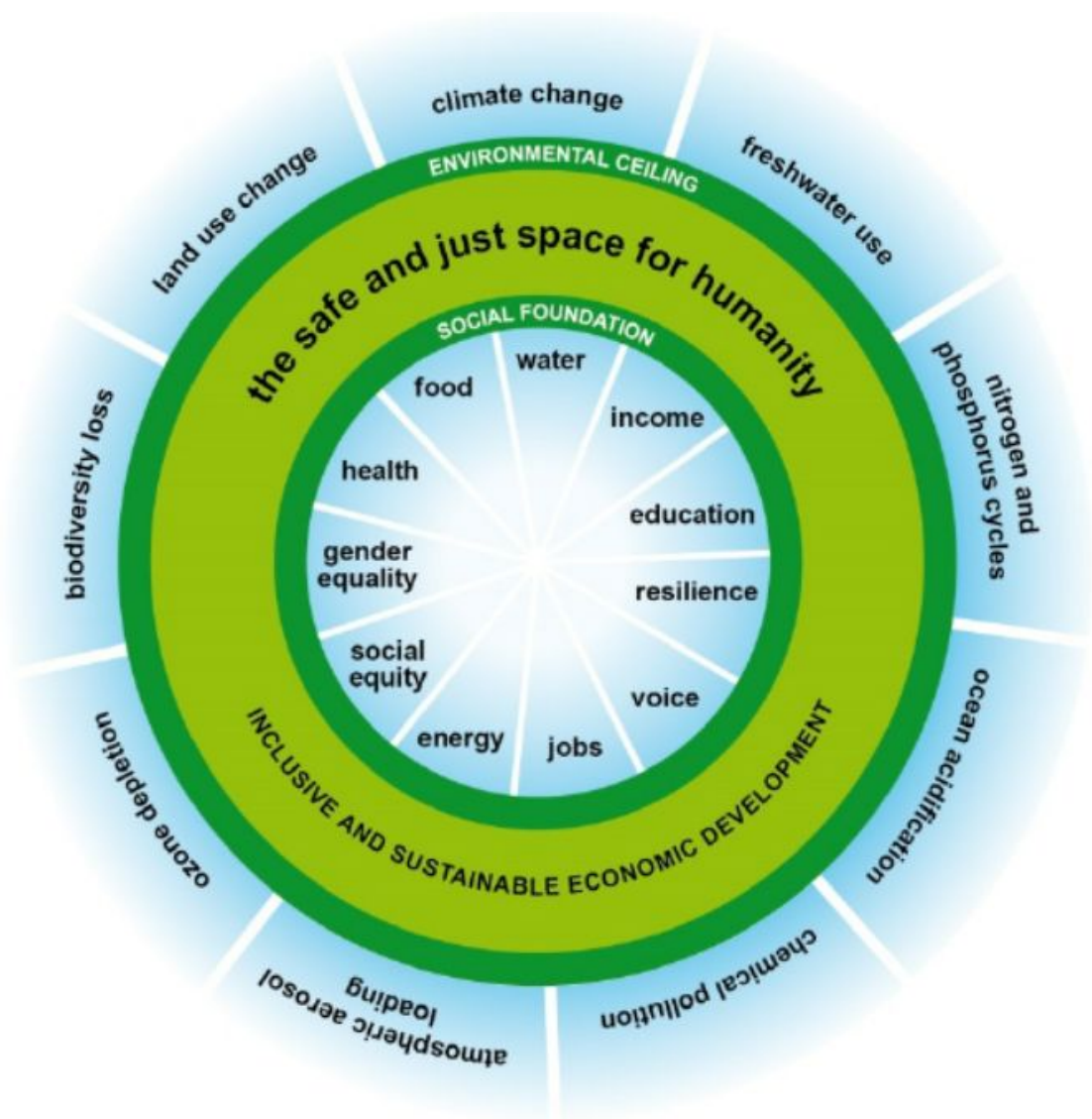


## Smart Chemistry Park



# Seven ways to think like a 21st century economist

Seven Ways to Think:	From 20th-Century Economics	To 21st-Century Economics
1. Change the Goal	<p>GDP</p>	<p>the Doughnut</p>
2. See the Big Picture	<p>self-contained market</p>	<p>embedded economy</p>
3. Nurture Human Nature	<p>rational economic man</p>	<p>social adaptable humans</p>
4. Get Savvy with Systems	<p>mechanical equilibrium</p>	<p>dynamic complexity</p>
5. Design to Distribute	<p>growth will even it up again</p>	<p>distributive by design</p>
6. Create to Regenerate	<p>growth will clean it up again</p>	<p>regenerative by design</p>
7. Be Agnostic about Growth	<p>growth addicted</p>	<p>growth agnostic</p>





# What is Community Wealth Building?



Traditional economic development practice and developer-led regeneration are failing to address the economic challenges of our time. Community wealth building is a new people-centred approach to local economic development, which redirects wealth back into the local economy, and places control and benefits into the hands of local people.

- Plural ownership of the economy
- Making financial power work for local places
- Fair employment and just labour markets
- Progressive procurement of goods and services
- Socially productive use of land and property



CITY OF SYDNEY 

## Community Wealth Building



Discussion Paper

November 2021 2021/328883

Green Global Connected

# Want to be one of the First Five?

It's first in best dressed, so let us know ASAP.

**Every Council and Community are different. We know that the local success of Villages depend upon your communities determining and leading the adoption.**

We support you and them by using development approaches that:

- Work in with your Council teams and priorities
- Create a network of community Champions
- Activate Neighbourhood participation and support
- Broadcast through media and social engagement
- Help communities and local groups act on their needs together

The bHive team are leaders in change management, community and business development, and the value and adoption of digital platforms for local benefit.

### INTEGRATING A TE AO MĀORI PERSPECTIVE

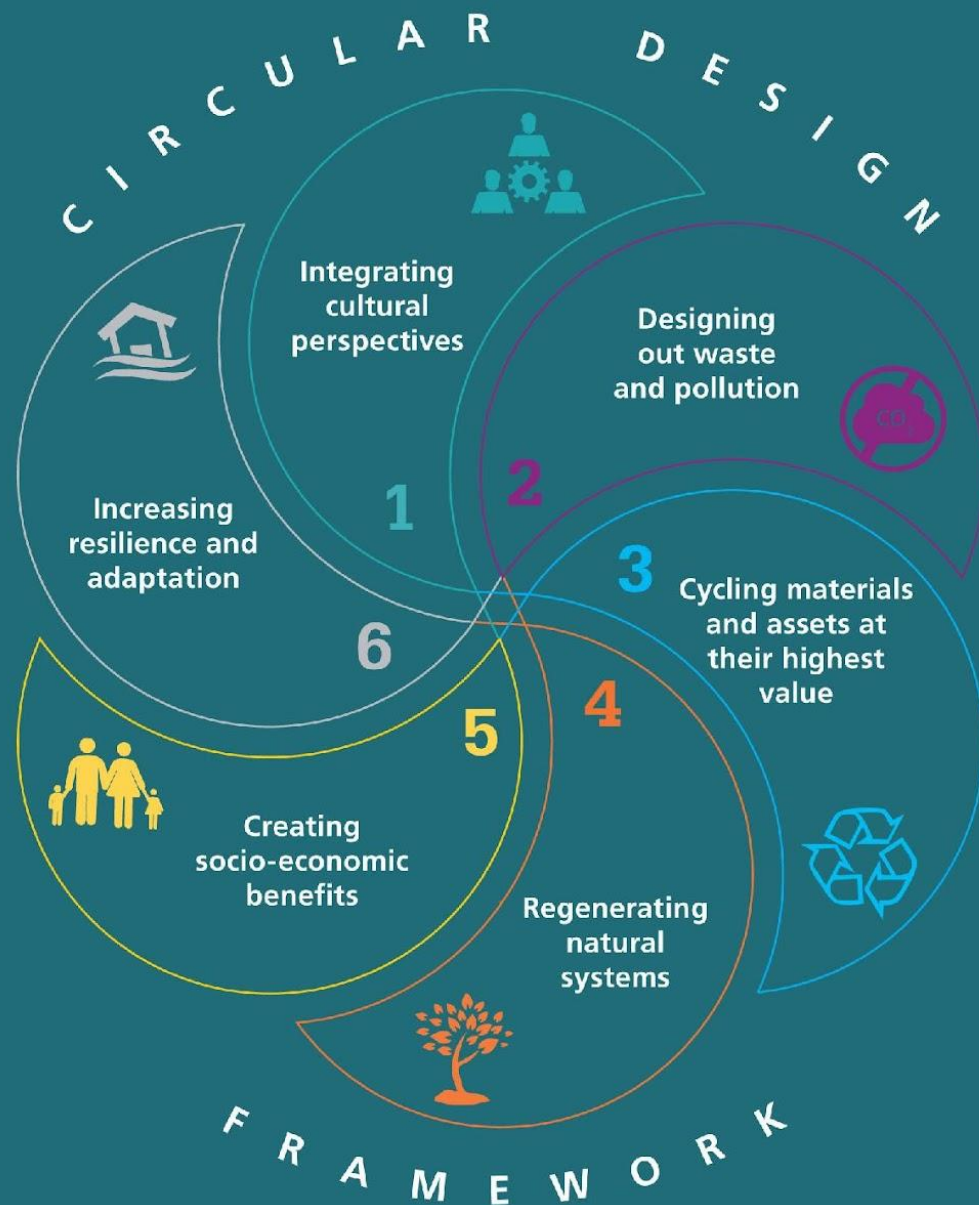
Ōhanga Āmiomio - What new approaches can we unlock when circular economy principals meet indigenous worldviews? How might we explore a design approach based on wairua to complement co-design methods and make space for a wider range of considerations.

### INCREASING RESILIENCE AND ADAPTATION

How might we better incorporate the need for resilience and adaption considering known and unknown climate-related risks and build in flexibility given the uncertain nature of future impacts?

### CREATING SOCIO-ECONOMIC BENEFITS

How might we take a more people-centred approach to local economic development that works to produce broadly shared economic prosperity, equity, and positive outcomes for all?



### DESIGNING OUT WASTE AND POLLUTION

How might we move beyond a linear 'take-make-waste system' to embrace a circular economy by designing out waste and pollution and look for new/old ways to design and use products and materials in order to protect the finite resources on our planet?

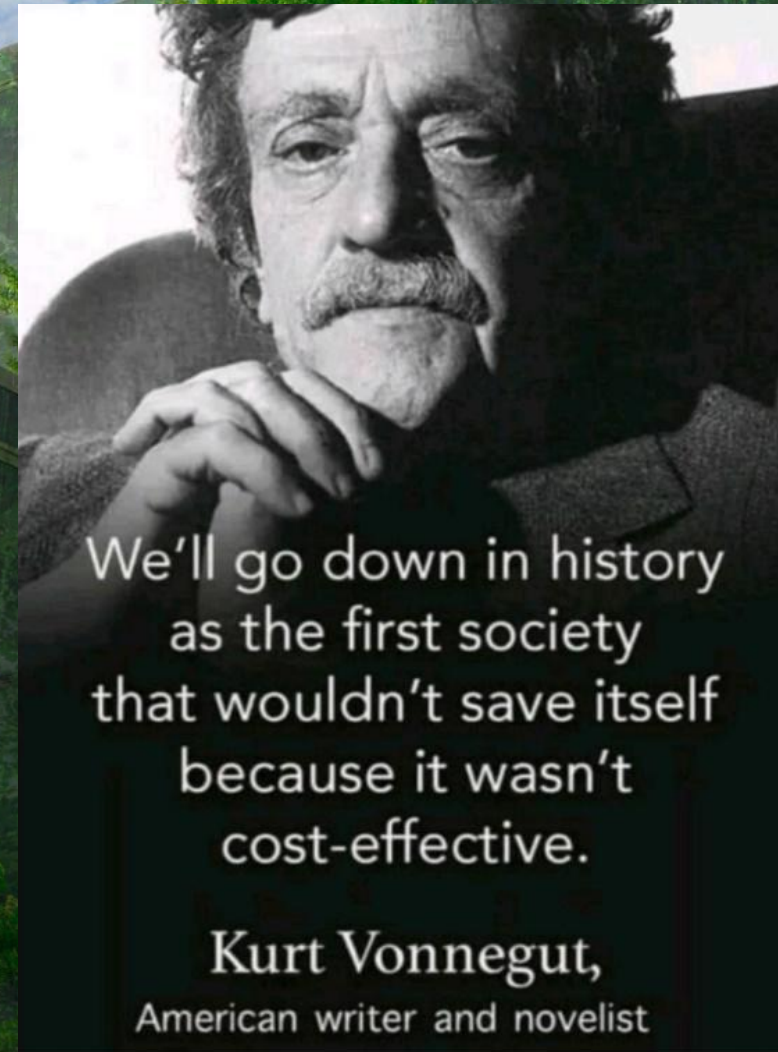
### CYCLING MATERIALS AND ASSETS AT THEIR HIGHEST VALUE

How might we reduce our human footprint by reducing extraction of virgin materials by keeping assets, materials and products in use through refuse, reuse, repair, remanufacture?

### REGENERATE NATURAL SYSTEMS

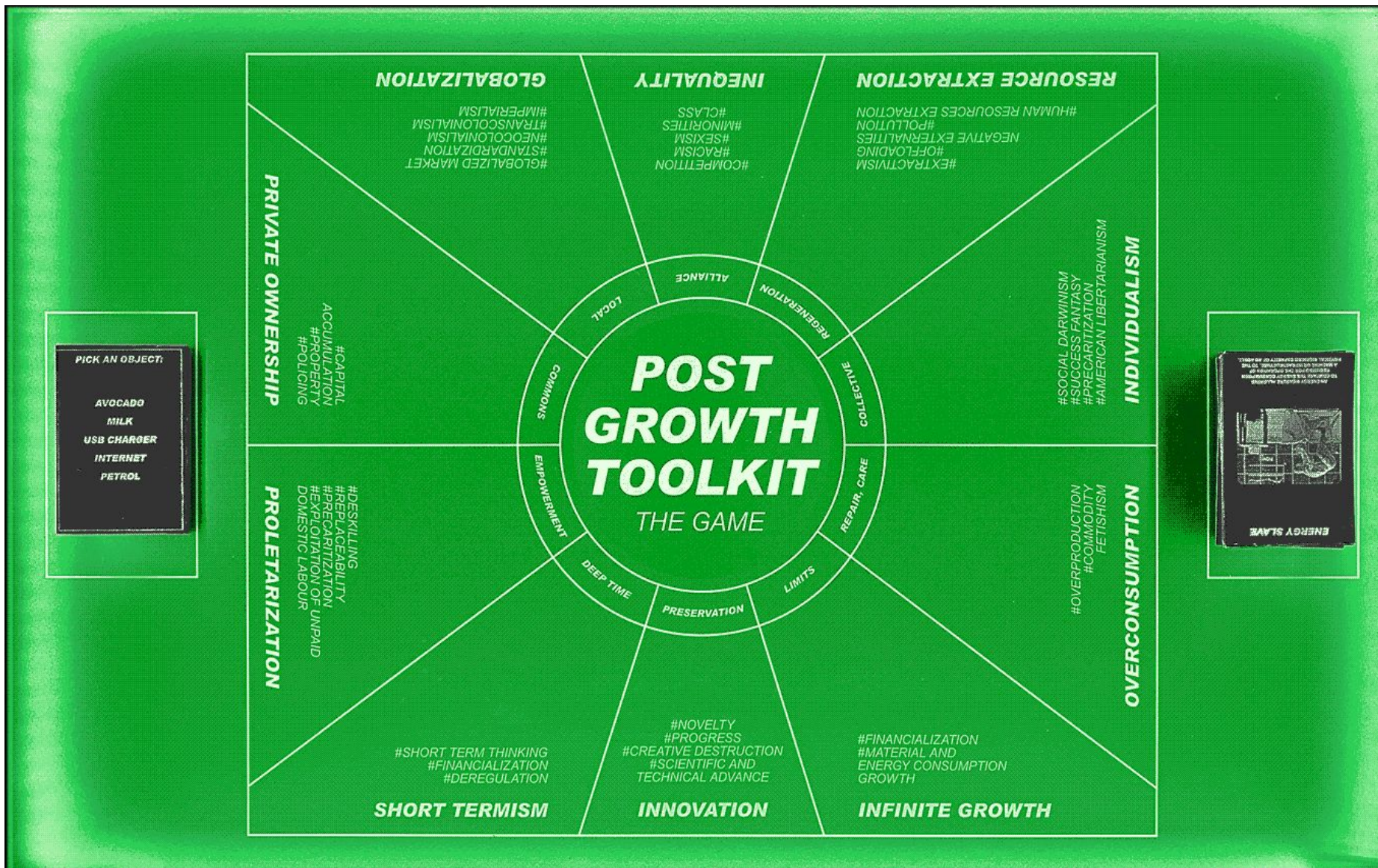
How might we regenerate natural systems upon which all life depends by actively looking for opportunities to support nature to thrive, mimic natural systems, grow biodiversity and create flourishing futures for people and planet?

Is this our  
legacy?



Is this our curtain  
call?

If the answer is no ..... we need a new  
approach



1. Globalisation
2. Resource extraction
3. Inequality
4. Individualism
5. Overconsumption
6. Infinite Growth
7. Innovation
8. Short-termism
9. Proletarianization
10. Private ownership

# Let's Discuss

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## How might we:

- Better understand the limits to growth through consumption?
- How do we redefine what constitutes a good life?
- Change the narrative from doom-gloom to shaping a future worth aspiring to?
- get comfortable working in the messy middle?
- support future generations to flourish?
- ground theory into practice?