Health & the Circular Economy

Sunand Prasad PPRIBA

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Penoyre & Prasad

we throw things away


but where is ‘away’ ?

Albatross stomach : Claire Fackler

Microfibre in marine environment : M. Danny

Microfibre in Beer : Mary Kusuth

Environmental Paradigms - Limits

Silent Spring Rachel Carson 1962	Toxicity
Limits to Growth Club of Rome 1972	Resource Limits
"Long Life, Loose Fit, Low Energy" Gordon Graham 1974	Adaptability/ Energy Efficiency
Our Common Future Brundtland 1987	Sustainability – intergenerational equity
UNFCCC 1992	Carbon

Environmental Paradigms – Possibilities

One Planet Living Bioregional, WWF mid 1990s	Ecological Footprint
Palmer, Zero Waste Institute	Zero Waste
Regenerative Design/ Cradle to Cradle Stahel, Braungart, McDonough 1982 ->	**Circular Economy**

Contrasting Systems

Human-made	Biological
Simple, disconnected	Complex, interconnected
Linear / wasteful	Closed loop / zero waste
Resistant to change	Adapted to constant change
Long-term toxins	No long-term toxins
Fossil-fuel dependent	Current solar income
Maximise one goal	Optimised as whole system
Extractive	Regenerative

Source: Exploration Architecture

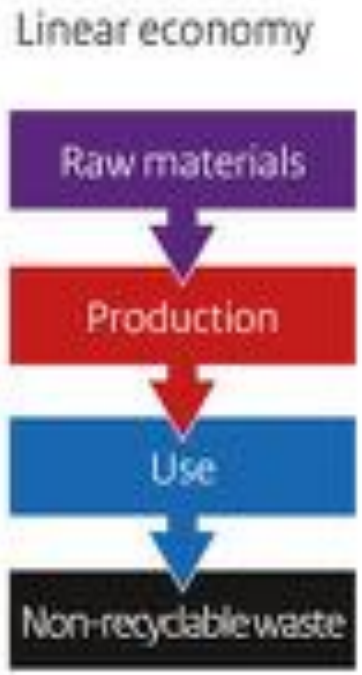
wrap

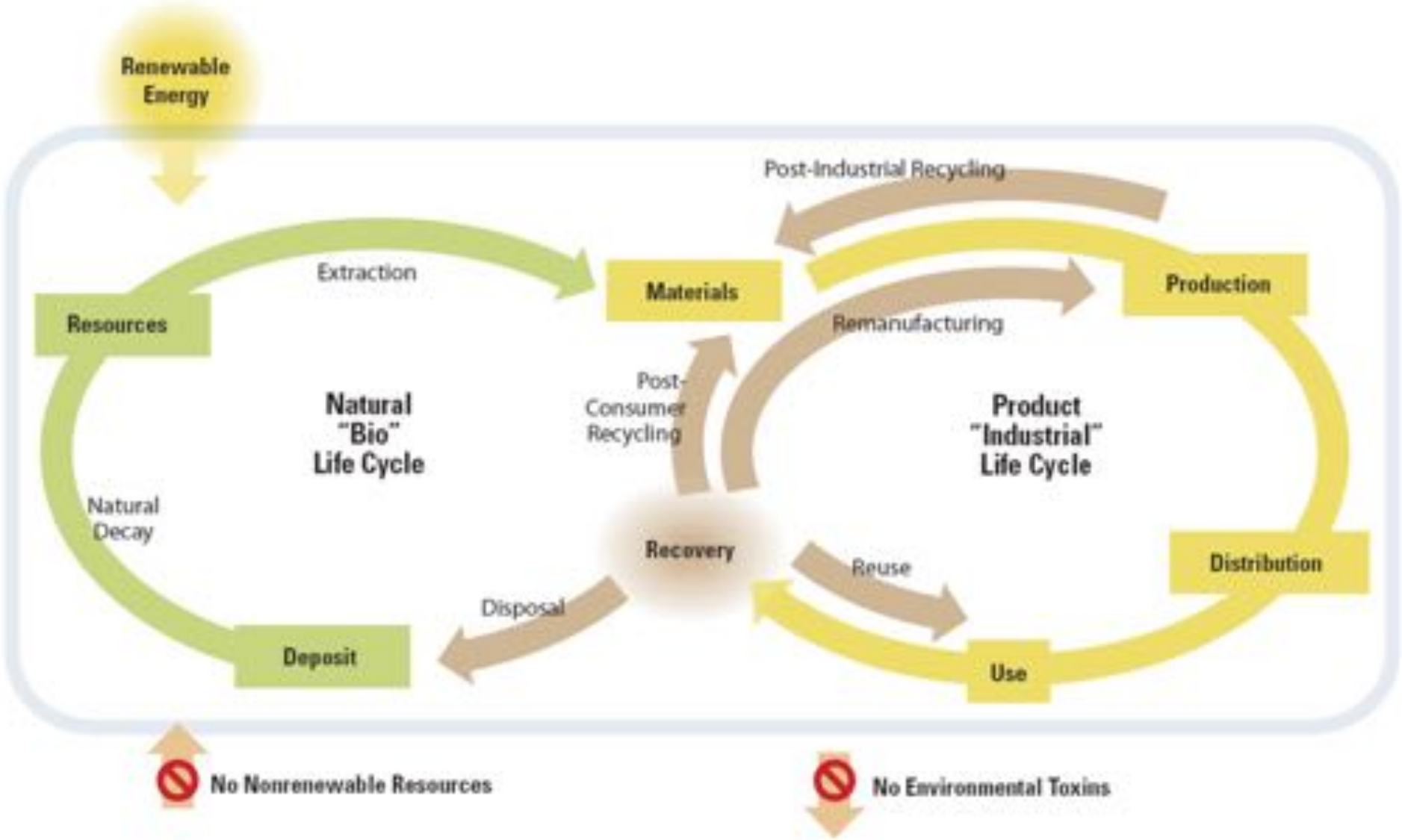
Working together for a world without waste

WRAP's vision is a world in which resources are used sustainably.

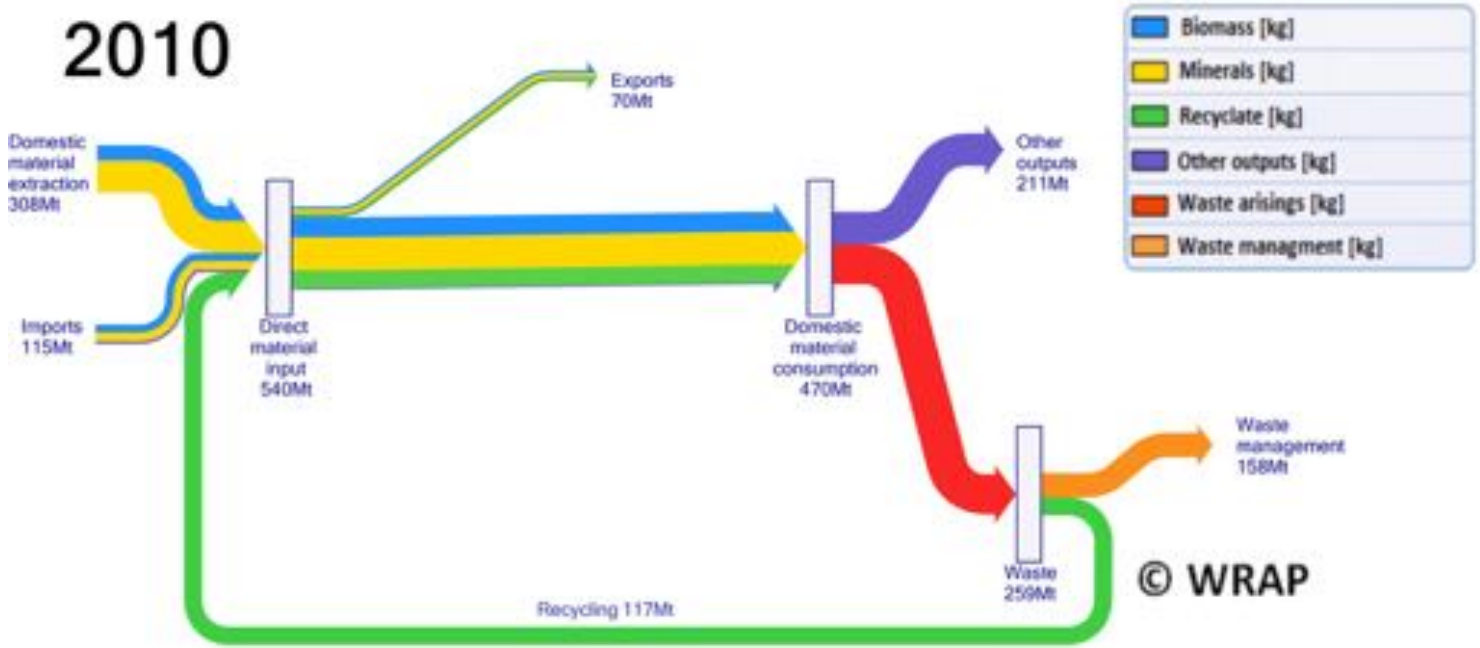
world without waste

THE COCA-COLA COMPANY

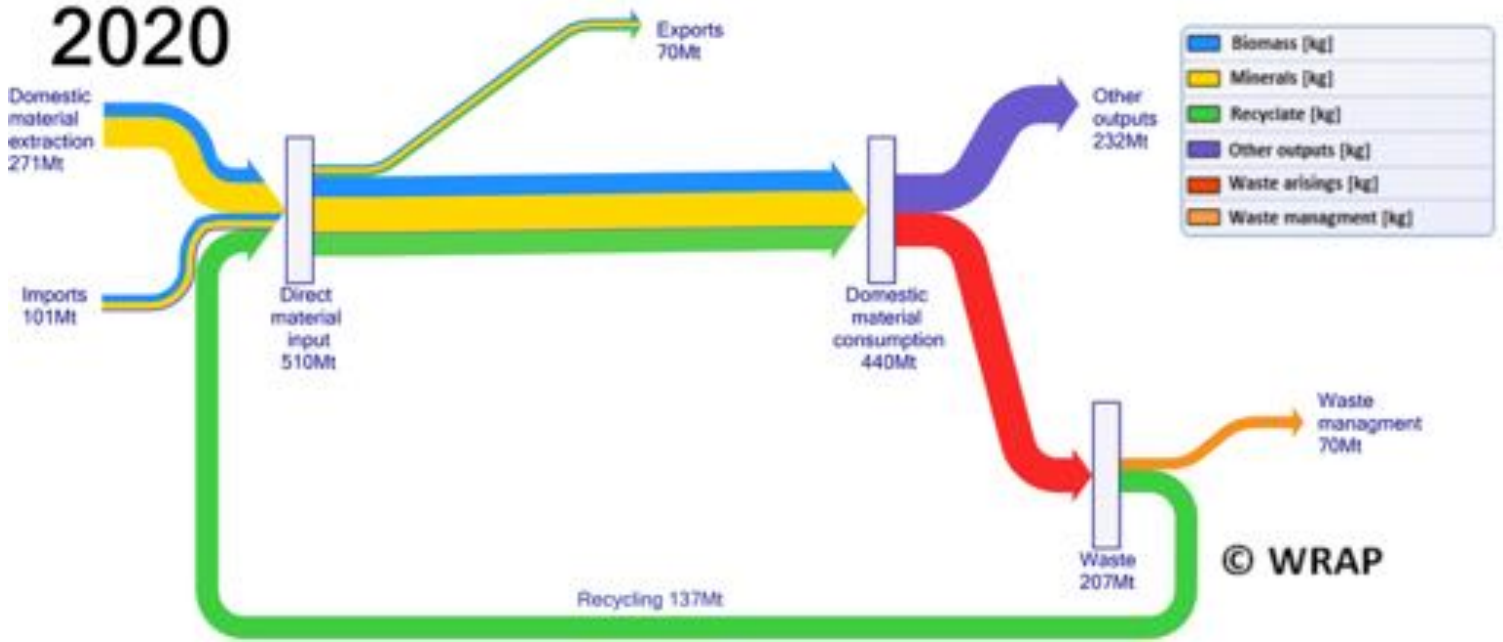

Linear economy
Raw materials
Production
Use
Non-recyclable waste



Circular Economy



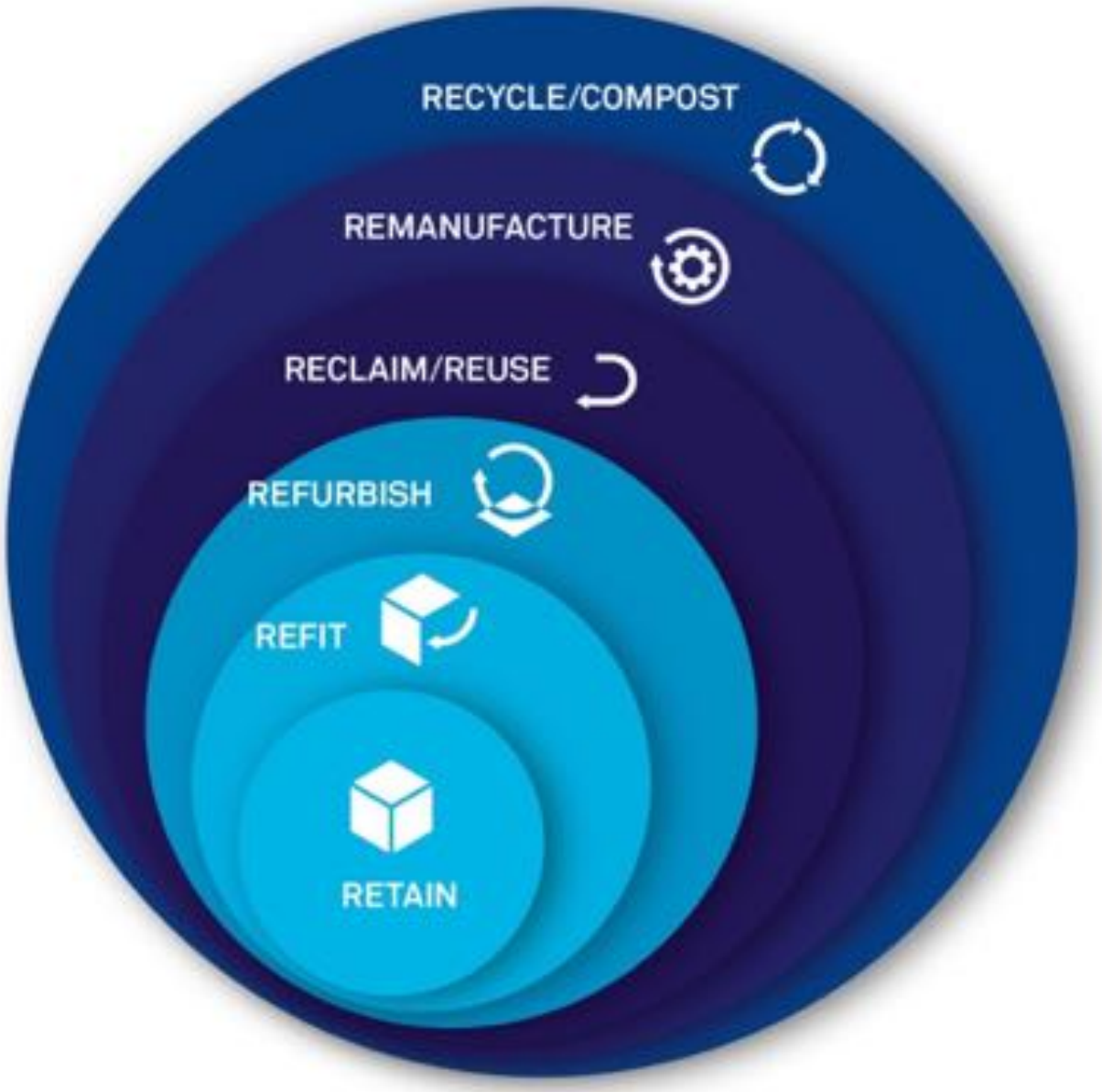
22% cicular



27% circular

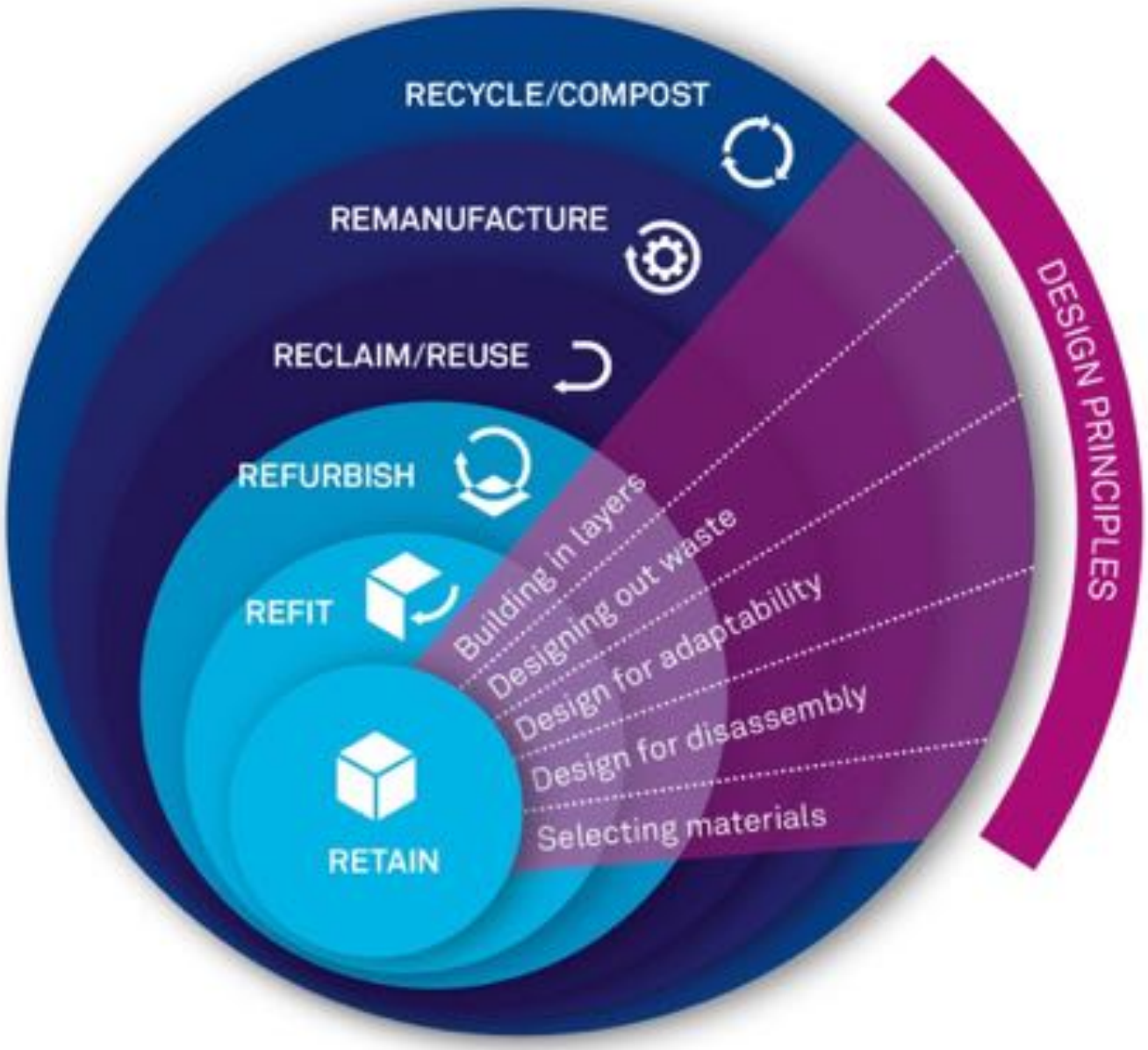
….. a more circular economy could increase UK GDP by £3 billion a year

Circular economy for buildings



Source: *Building Revolutions* David Cheshire, AECOM

Circular economy for buildings



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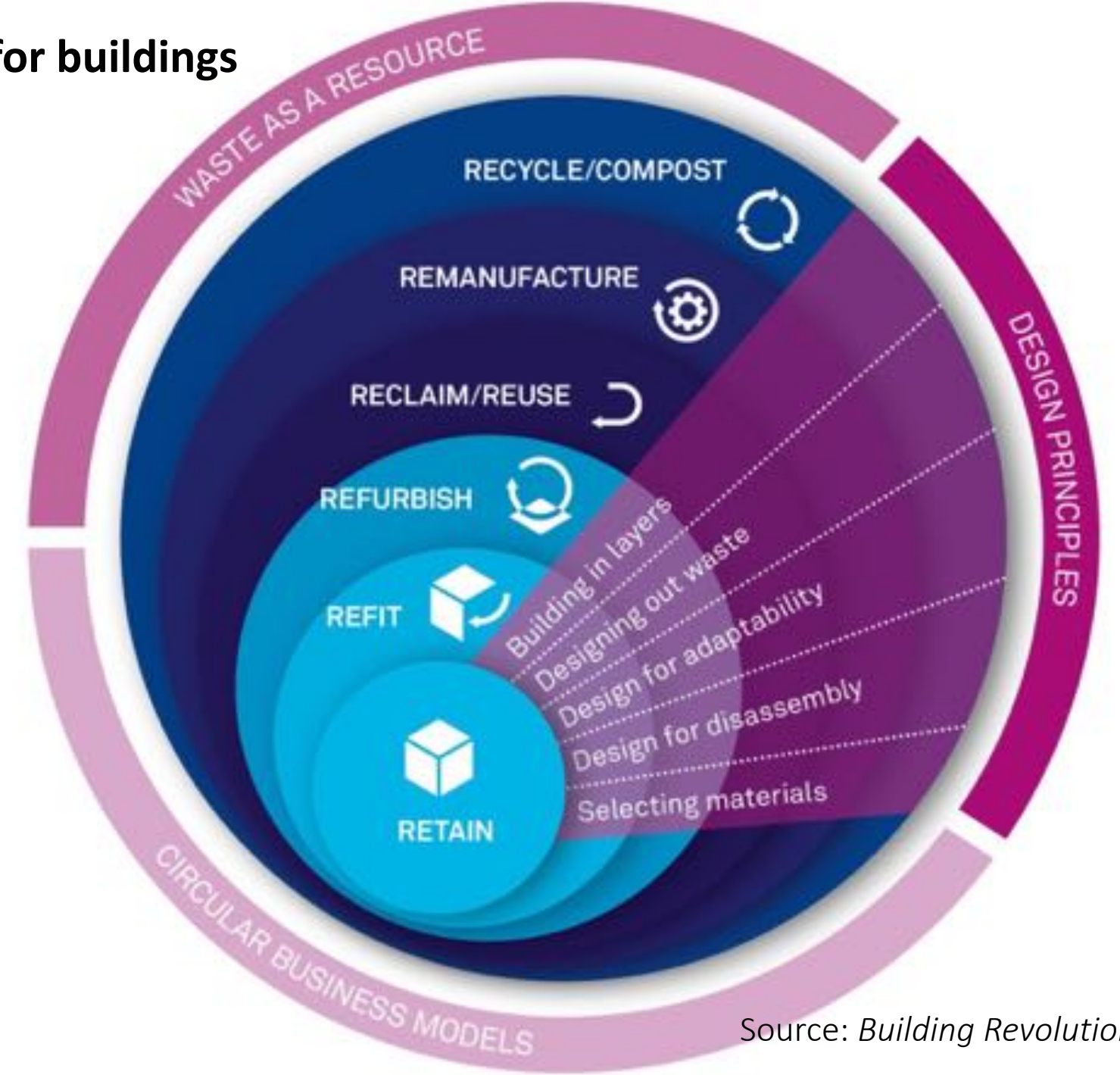
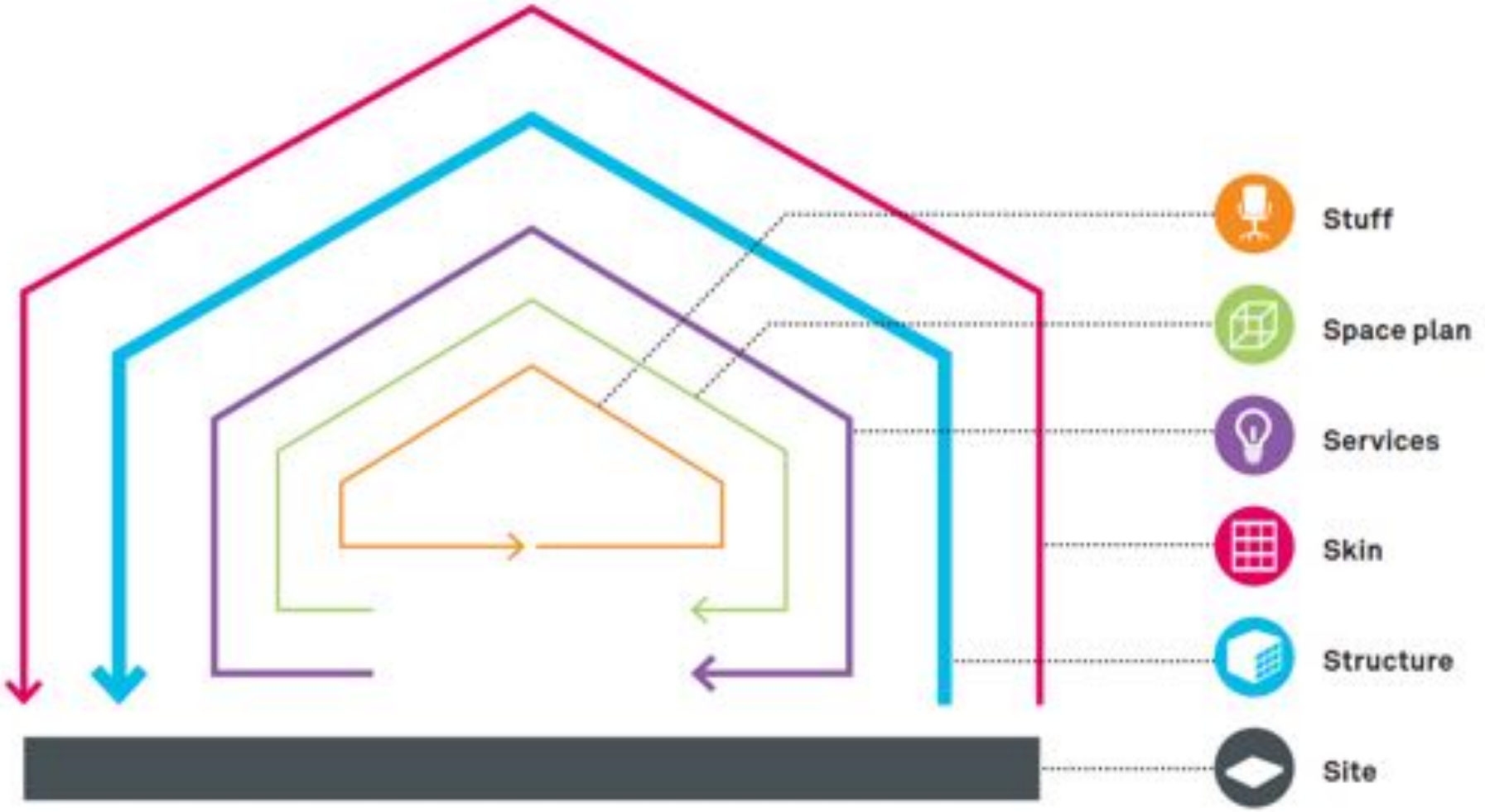
Circular economy for buildings



Source: *Building Revolutions* David Cheshire, AECOM

Building in Layers



Stewart Brand after Frank Duffy

Re-purpose

Heineken WOBO bottle








3 days ago

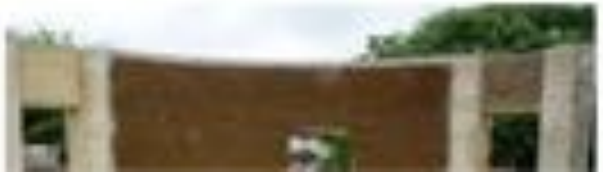





530 × 500 - amerpat.nl


alamy stock photo





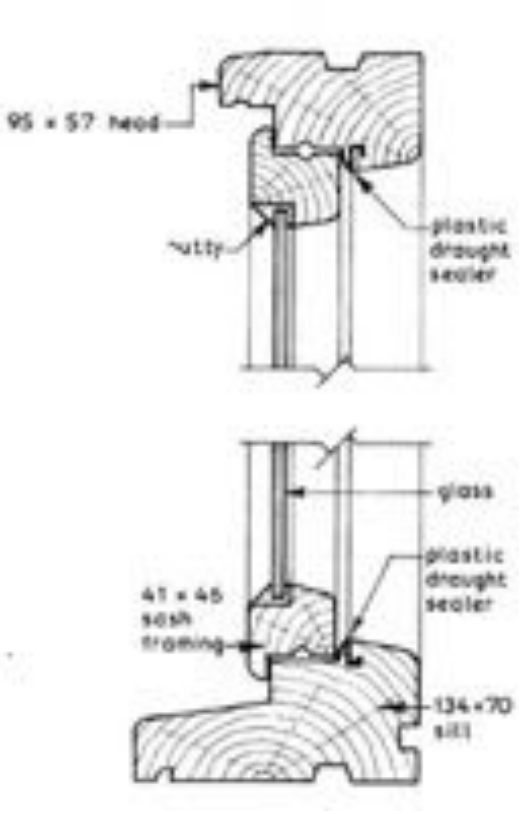

Re-cycle

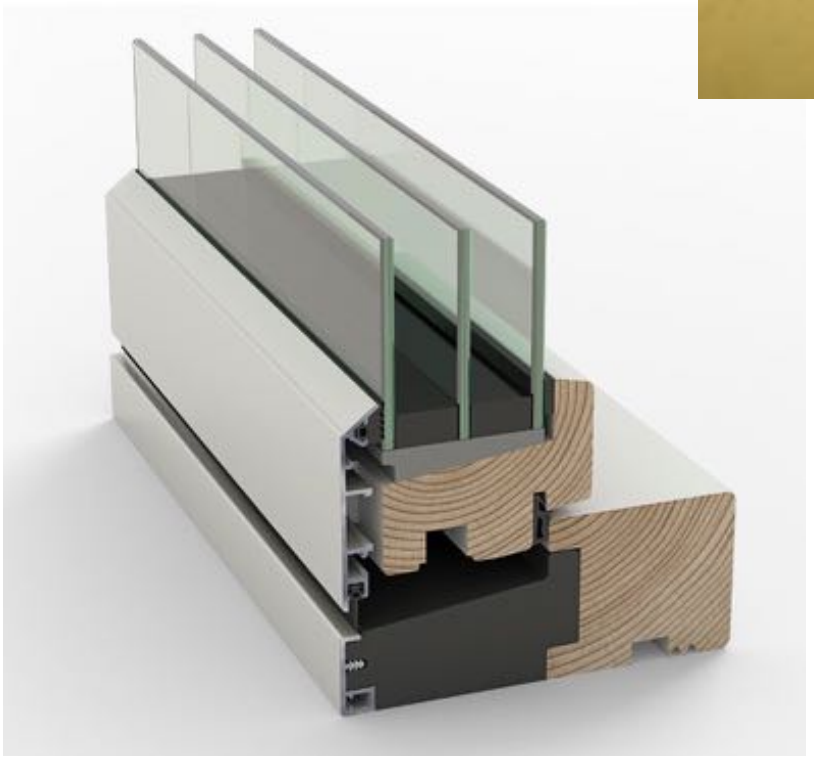

Interface Flor

Retrofit

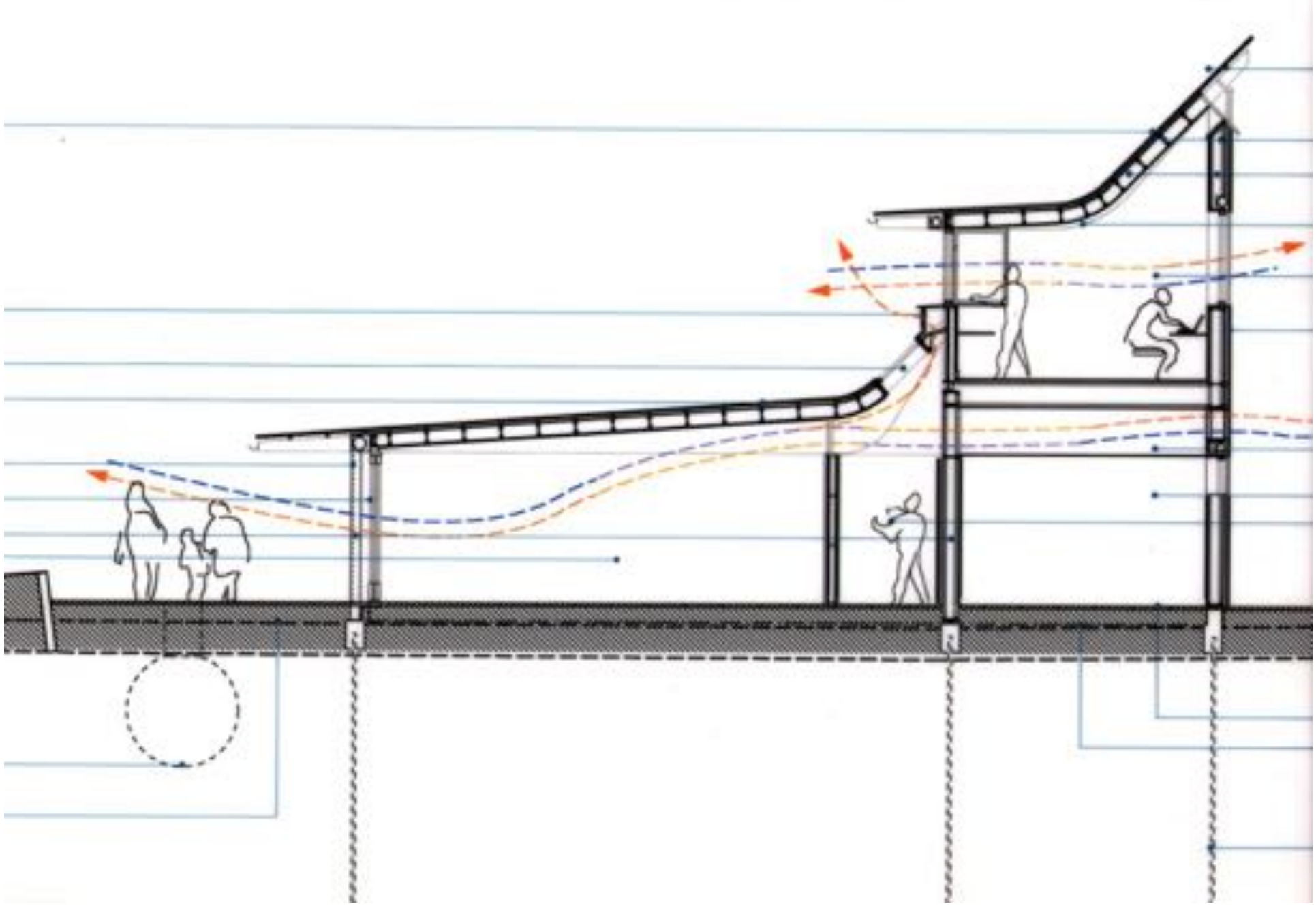
Energiesprong Netherlands

Manufacture for disassembly





Millennium Centre Barking & Dagenham , Penoyre & Prasad



Millennium Centre Barking & Dagenham , Penoyre & Prasad

Reclaim

The performance economy

"I told Philips, 'Listen, I need so many hours of light in my premises every year. You figure out how to do it. If you think you need a lamp, or electricity, or whatever – that's fine…..

I'm not interested in the product, just the performance. I want to buy light, and nothing else."

Thomas Rau

Philips – Pay Per Lux

Health impacts of a circular economy: buildings & energy

"Circular buildings" Less demolition Re-use, repurpose, recycle	Improved indoor air quality and use of nontoxic materials	Various, including occupational health and safety issues, mental health and respiratory.
Use of recycled materials in manufacturing processes	Indirect impact via reduced manufacturing air/water emissions	Cardiovascular and respiratory Heat-related conditions in climate change (long term)
General move to non-fossil energy, energy efficiency, and climate change adaptation	Lower air pollutants and Green House Gas emissions	Reduced cardiovascular and respiratory effects Reduced heat-related impacts and exposure risks from extreme events from climate change

Source*: Circular Economy & Health: Opportunities & Risks;* WHO Regional Office for Europe

Health impacts of a circular economy: new business models

Performance models in health care sector and other sectors	Direct impact on health sector via reduced costs Indirect impact for various sectors (e.g. transport) via reduced manufacturing	Reduced costs allow improved health services. Conditions related to emissions from manufacturing are reduced.
Product- and service-sharing platforms (business to business, business to consumer and consumer to consumer), e.g. car sharing	Indirect impact via reduced manufacturing emissions Direct impacts on air quality and noise from car sharing	Reduced respiratory and cardiovascular conditions
Shift from material to virtual products or services	Direct impact on health	Reduction in poor diet related conditions, obesity, cardiovascular diseases, cancers

Source*: Circular Economy & Health: Opportunities & Risks;* WHO Regional Office for Europe

Health impacts of a circular economy: waste management

Reduced waste generation and production emissions	Reduced indirect impacts from waste management (landfill, incineration, recycling, etc.) and from manufacturing air/water emissions	Various, including reduced cancer, negative birth outcomes, and respiratory risks
Waste reduction and recycling in health sector	Direct impact on health sector via reduced costs	Reduced costs allow improved health services across all endpoints.
Reduced energy recovery (incineration)	Reduced generation of pollutants during energy recovery process	Possibly reduced cancers, respiratory and negative birth outcomes

Source*: Circular Economy & Health: Opportunities & Risks;* WHO Regional Office for Europe

Health impacts of a circular economy: food and agriculture

Food waste: redistribution of edible food	Direct health effects	Reduced malnutrition and other poor diet related endpoints
Resource-efficient agricultural practices (including reduction in fertilizer and pesticide use), regenerative farming practices (including organic cultivation), closed loops of nutrients and other materials	Reduced pressures and states (indirect) and exposure (direct)	Reduction in poor-diet-related conditions, obesity, various cancers

Source*: Circular Economy & Health: Opportunities & Risks;* WHO Regional Office for Europe

Draft London Plan Policy S17

A **Circular Economy Statement** should be submitted, to demonstrate:

1. How all materials arising from demolition and remediation works will be re-used and/or recycled
2. How the proposal's design and construction will enable building materials, components and products to be disassembled and re-used at the end of their useful life
3. Opportunities for managing as much waste as possible on site
4. Adequate and easily accessible storage space to support recycling and re-use
5. How much waste the proposal is expected to generate, and how and where the waste will be handled


Eliot Moore

Avik Maitra Inhabitots


Bacara


Pixabay

Penoyre &Prasad

Thank You