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# ISWA 2024

## WASTE TO WEALTH: SOLUTIONS FOR A SUSTAINABLE FUTURE

15 - 18 Sept | CTICC, CAPE TOWN



# A Time of Waste

**Kate Stubbs, Director**  
Interwaste Group  
South Africa

**INTERWASTE**  
A proud  Séché environnement company

# A TIME OF WASTE

*Moving swiftly toward a sustainable future*

**INTERWASTE**

A proud  *Séché* environnement company

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A wide-angle photograph of a lush green agricultural field, likely corn, stretching to the horizon. The sky is a vibrant blue with scattered white cumulus clouds. In the distance, a range of low mountains or hills is visible under the horizon line.

# Serving Land and Life

Our purpose

**INTERWASTE**



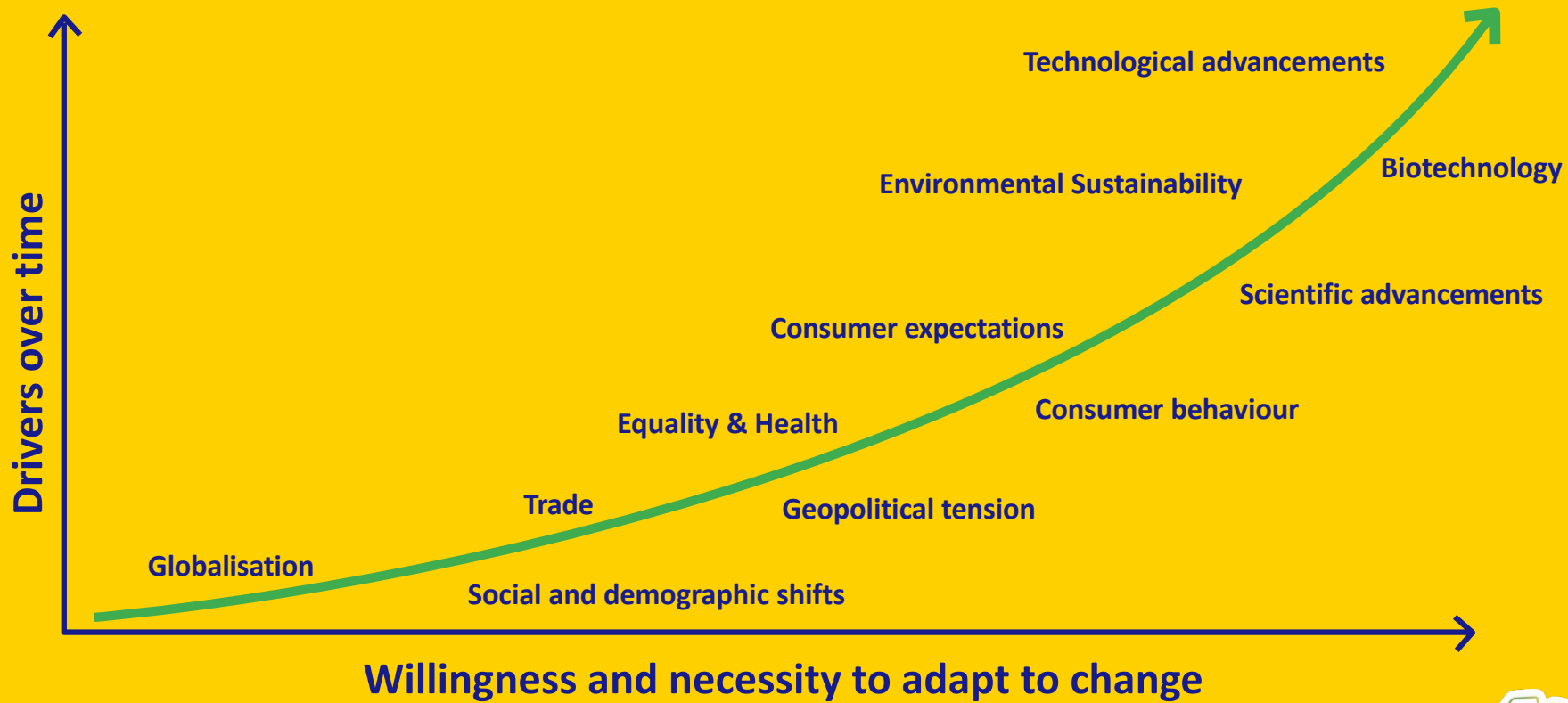
# PAST

20<sup>th</sup> Century economics drives growth at all costs, yet a system that continues to grow while depleting its host is, by biological definition, a cancer.”

Kate Raworth



# Global drivers of innovation and change



# Global risks ranked by severity over the short and long term



Source: World Economic Forum Global Risk Perception Survey 2023-2024



# The state of Waste in Africa

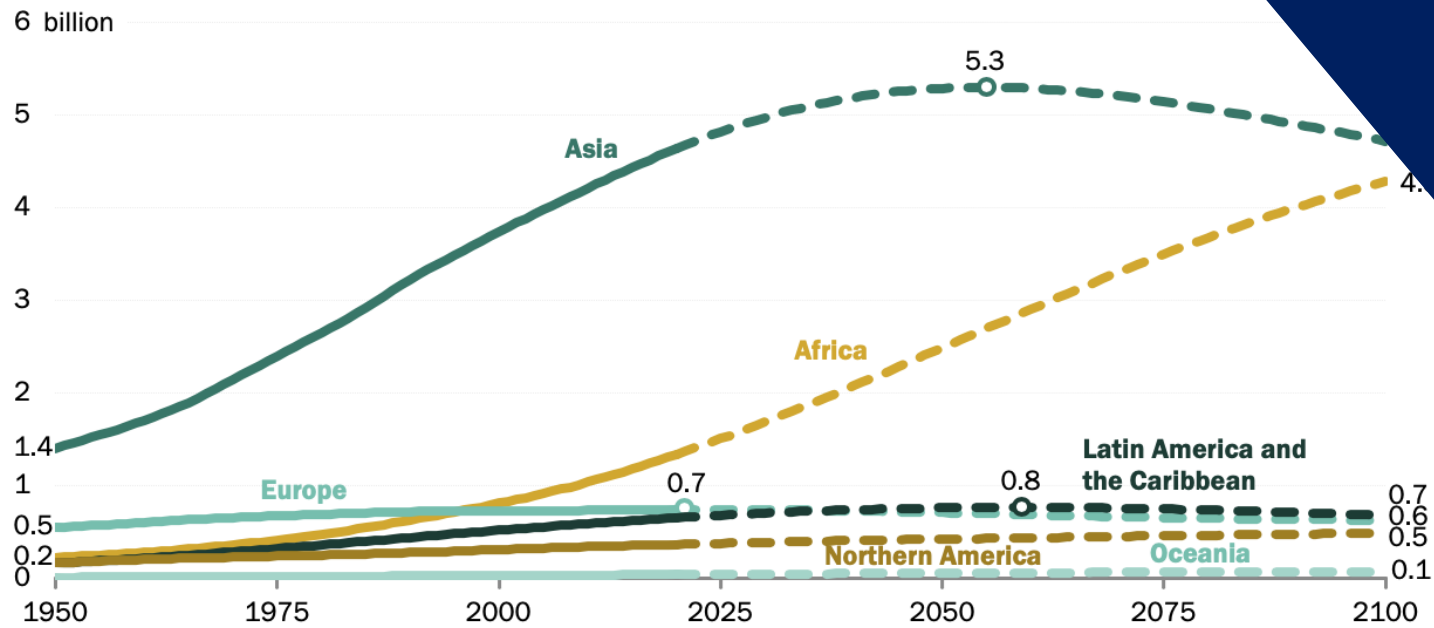


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Population growth in Africa is projected to remain strong throughout this century

Population growth  
in Africa  
is largest  
globally

Population by region, in billions



Source: United Nations Department of Economic and Social Affairs, Population Division, "World Population Prospects 2019."

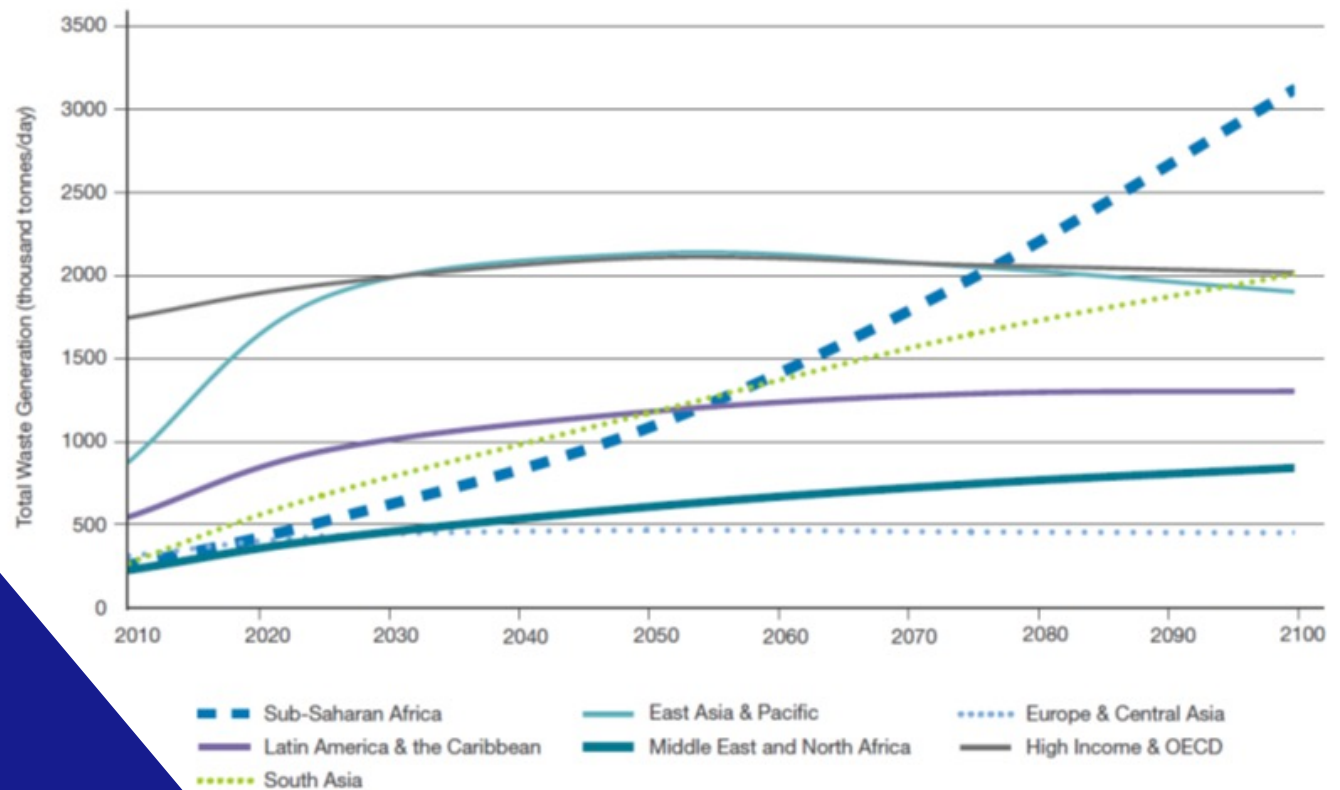




# Projected MSW generated per region

Source: Hoornweg et al. (2015)

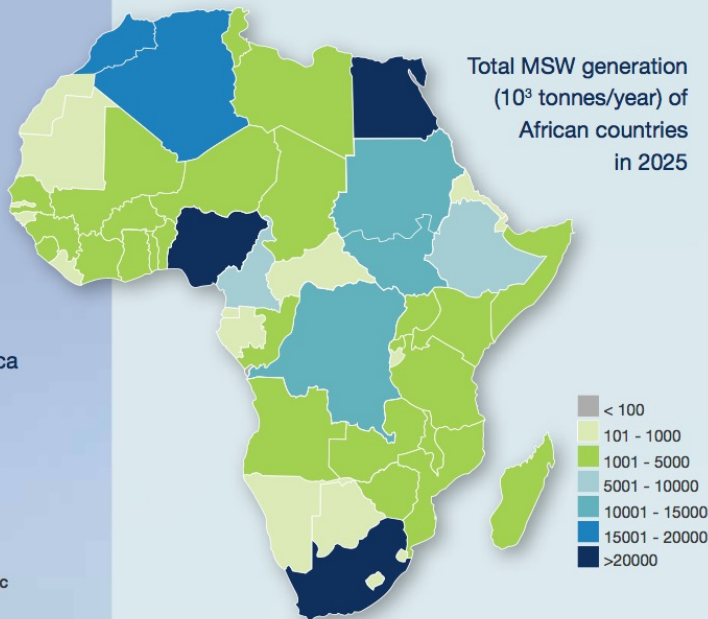
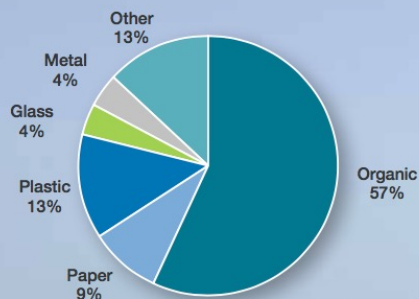
Figure 1.2 Total MSW generation by region



# The state of waste in Africa

## MSW composition in sub-Saharan Africa

Source: Hoornweg and Bhada-Tata (2012)



Total MSW generation (10<sup>3</sup> tonnes/year) of African countries in 2025



**GENERATION** 125 million tonnes of municipal solid waste (MSW) was generated in Africa in 2012, which is expected to double by 2025. The growth in waste generation in Africa is expected to be so significant, that any decrease in waste generation in other regions globally will be overshadowed by Africa.



**WASTE COLLECTION** services in most African countries are inadequate. The average MSW collection rate is only 55%.



## AFRICA Waste Management OUTLOOK



**DISPOSAL** More than 90% of waste generated in Africa is disposed of at **uncontrolled dumpsites and landfills**, often with associated open burning. **19** of the world's 50 **biggest dumpsites** are located **in Africa**, all in Sub-Saharan Africa.



**COMPOSITION** On average, **13%** of MSW generated in Africa is **plastic** and **57%** is **organic waste**, the bulk of which is currently dumped but which could provide significant socio-economic opportunities for countries.



**RECYCLING** has emerged across Africa, driven more by poverty, unemployment and **socio-economic need** than by public and private sector design. An estimated **70-80%** of the MSW generated in Africa is **recyclable**, yet **only 4%** of MSW is **currently recycled**.

**Informal waste pickers** are active in recovering valuable resources from the waste at **little to no cost** to municipalities and companies.



# Challenges impacting waste management in Africa

Weak governance, policies and regulatory framework (including transboundary waste movement)

Lack of skills and practitioners

Weak enforcement and monitoring of legislation

Lack of political willingness, and therefore financial capability, to invest in waste services and infrastructure

Lack of reliable, comprehensive and current waste data

Lack of waste infrastructure and beneficiation solutions e.g. options for re-use, recycling and recovery of waste

Harmonization of policies and policies to prevent waste

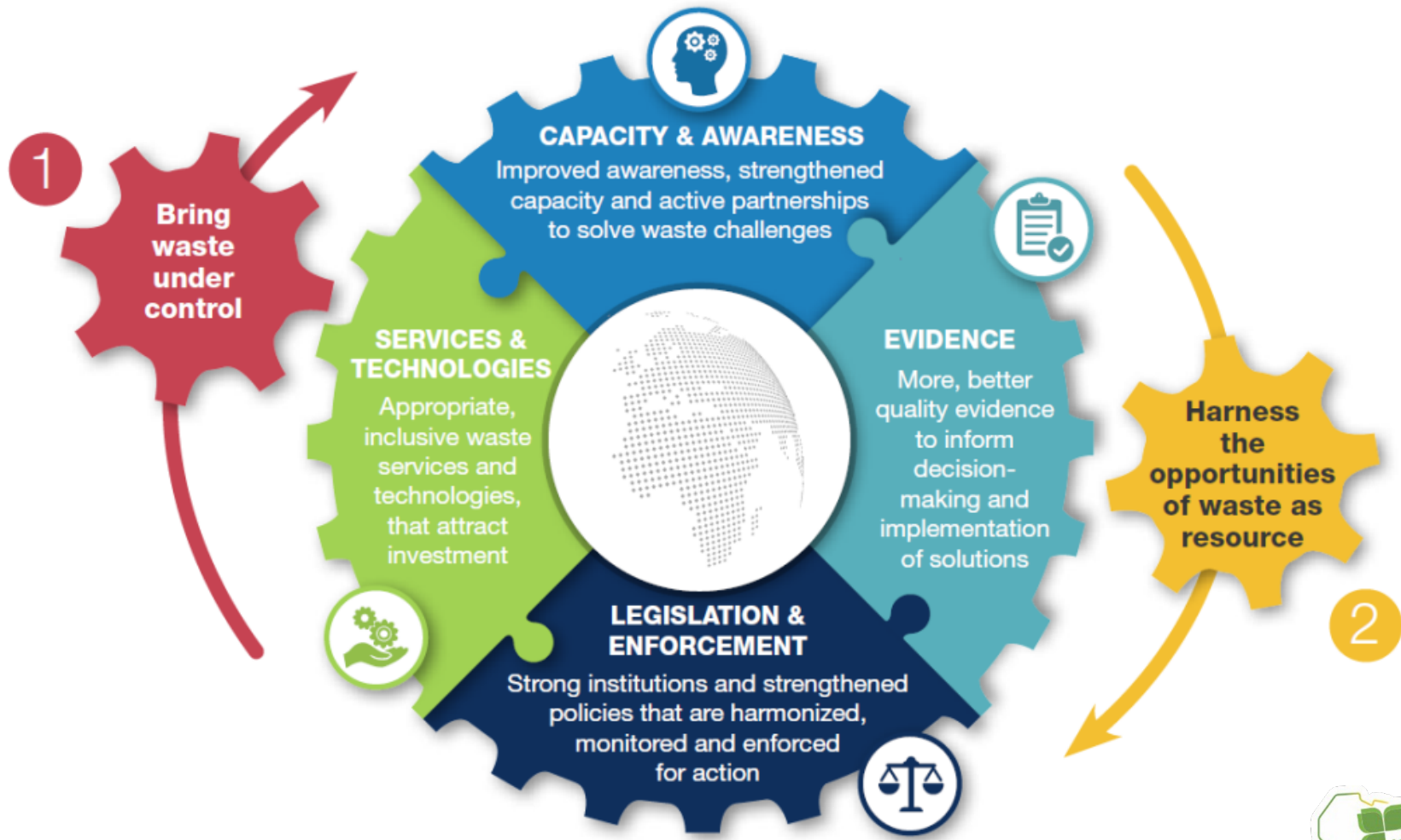
Application of inappropriate technologies

Scarcity of verifiable data on impacts of poor waste management.

Constraints for accessing funding and finance mechanism for waste infrastructure

Lack of awareness of threats and opportunities of waste

Non-domestication of global agreements making Africa an easy target for illegal dumping of hazardous waste



# Collaboration is Critical

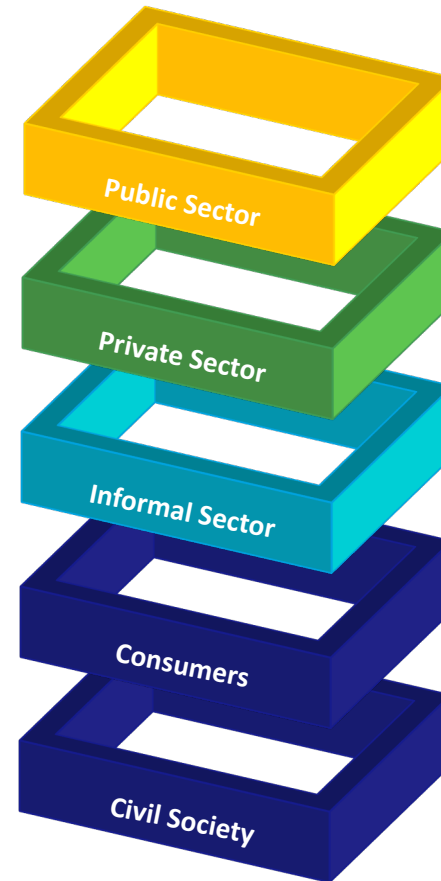
Partnerships between government and other role players should be strengthened.

The success of solid waste management in Africa relies heavily on an enabling government environment determined by social, economic and psychological factors, including public participation, policy and public attitudes and behaviour.

**Public Sector**  
Policy & legal framework  
Policy instruments  
Enforcement  
Research & education  
Coordination

**Informal Sector**  
Re-use  
Recycling  
Waste Collection

**Civil Society**  
Watchdog  
Awareness raising  
Campaigns  
Eco-labelling  
Service provision



**Private Sector**  
Product design  
Production  
Investments  
Service delivery  
Re-use, recycling  
Codes of conduct

**Consumers**  
Product Choice  
Product use  
Product Disposal

**Every challenge creates  
an opportunity**



# The Africa We Want – African Union Agenda 2063

*“A prosperous Africa based on inclusive growth and sustainable development”*

**01** Income generation - secondary resources could inject US\$800 billion per year into African economy (re-use, recycling & recovery)

**Income Generation**

**02** Create significant socio-economic opportunities

**Socio-economic Opportunities**

**03** Growing local manufacturing, creating jobs, addressing unemployment, building local and regional economies

**Local Growth**

**04** Reducing health impacts

**Health Impacts**

**05** Restoring and regenerating biodiversity, ecosystems

**Restore Biodiversity**

**06** Cost of inaction too significant to ignore!

**Cost of inaction**



**Is this not the world we want?**

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**FROM  
WASTE**




**TO  
WORTH**

**MAKING  
EVERY MOMENT  
COUNT FOR  
SUSTAINABILITY**

*Moving  
swiftly toward a  
sustainable future*

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Effective waste management directly and indirectly addresses all 17 elements of SD Goals



# SUSTAINABLE DEVELOPMENT GOALS

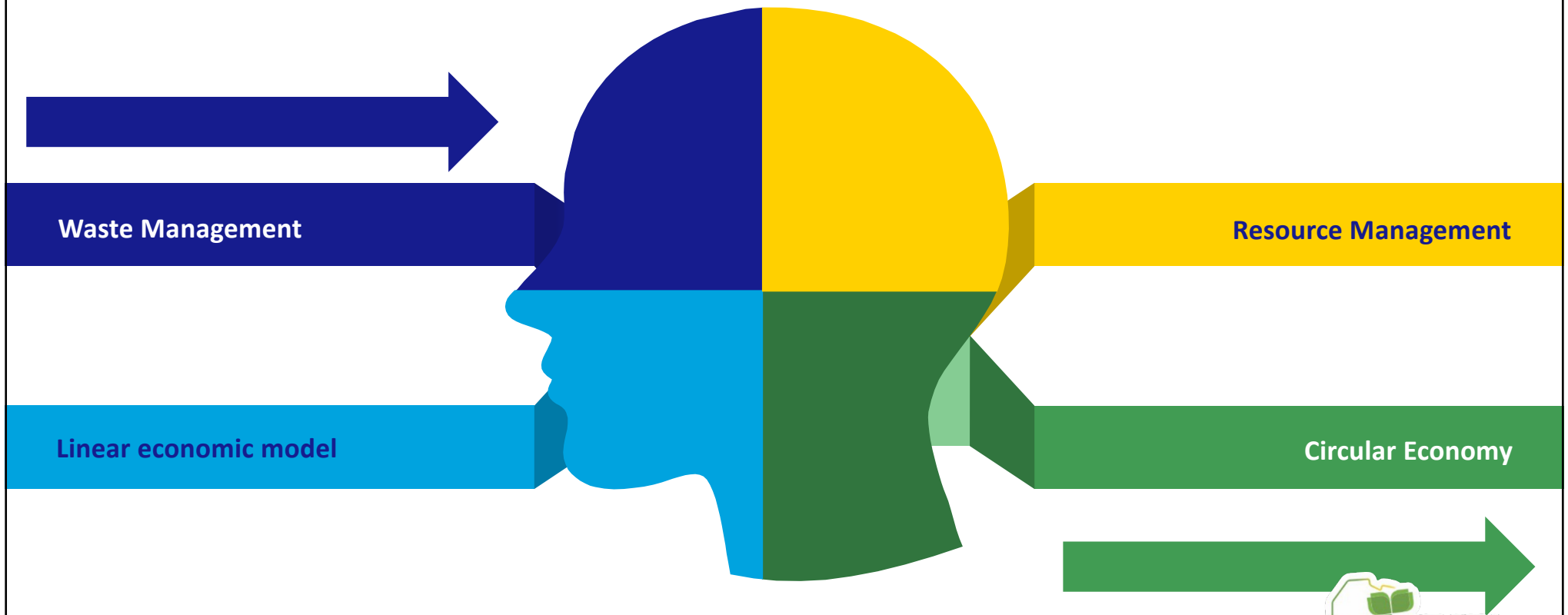


THE SOUTH AFRICA I KNOW, THE HOME I UNDERSTAND

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# A shift in mindset





**Resortecs**  
Dissolvable stitches that improve clothing recycling



**Napapijri Circular Series**  
A 100% recyclable clothing collection



**thredUP**  
Keeping clothing in use - save money and reduce waste



**Solvay**  
Keeping the molecules and materials in use



**Groupe Renault**  
Europe's first dedicated circular economy factory for vehicles



**Apeel**  
A plant-based coating that reduces food waste



**Universal Bottle from the Coca-Cola Company**  
A reusable bottle design for multiple brands



**Swedish Return System**  
An industry wide shared packaging system

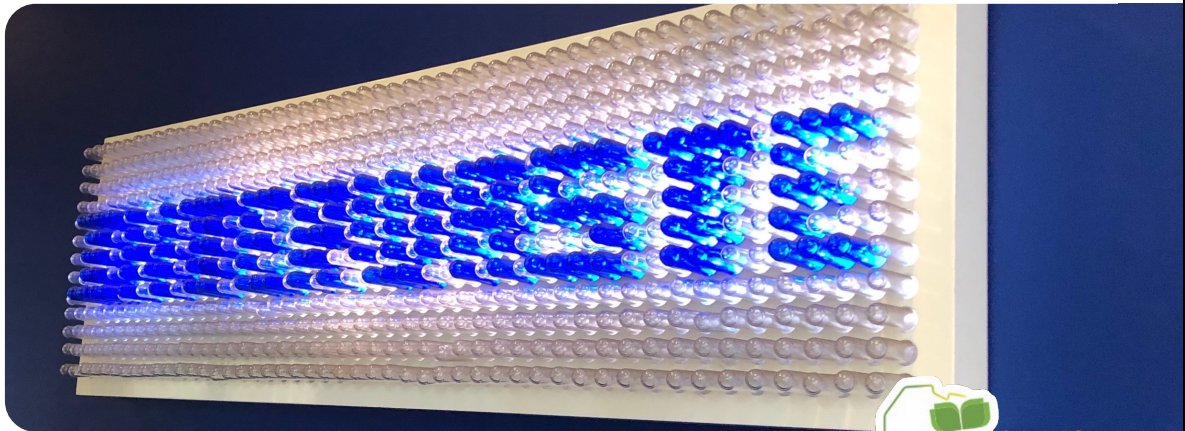


**Winona Farm, Australia**  
Profitable and resilient farming through grassland restoration





# REUSE





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# RECYCLING



AgriProtein, Cape Town

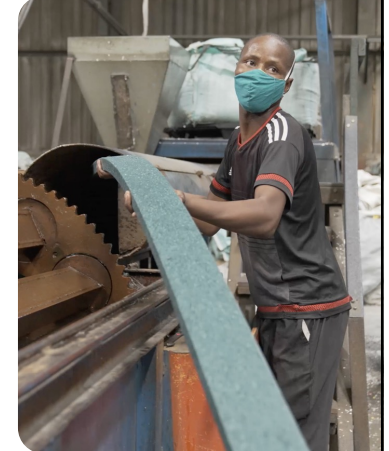


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# DANONE SOUTH AFRICA RECYCLED DESK DRIVE



Danone has taken action to contribute in a meaningful way to create a safe space for children to learn while diverting plastic from landfill

# RDF South Africa



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# Reppie 50MW MSW WTE plant Koshe Dump in Addis Ababa



# Landfill Gas Tunisia



# Bio2Watt 4MW Plant South Africa



# Economic instruments supporting sustainable solutions

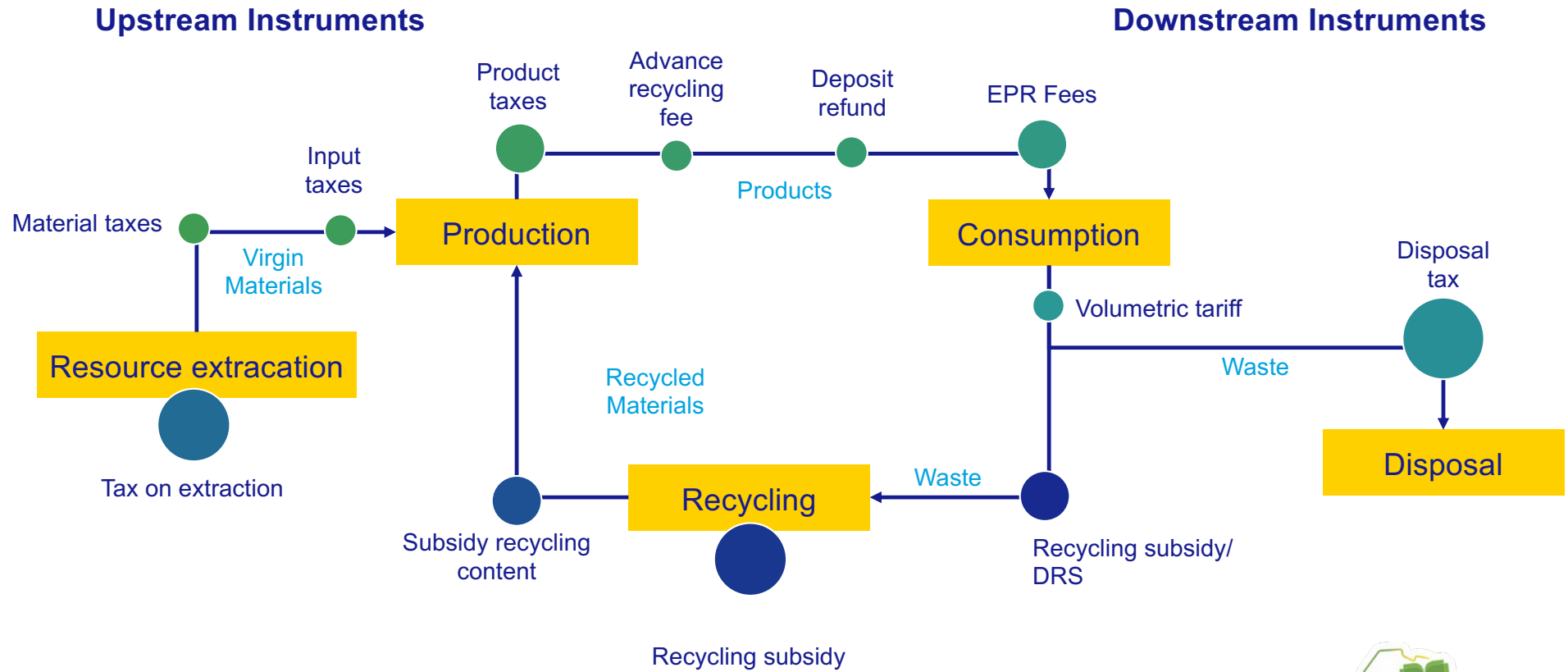
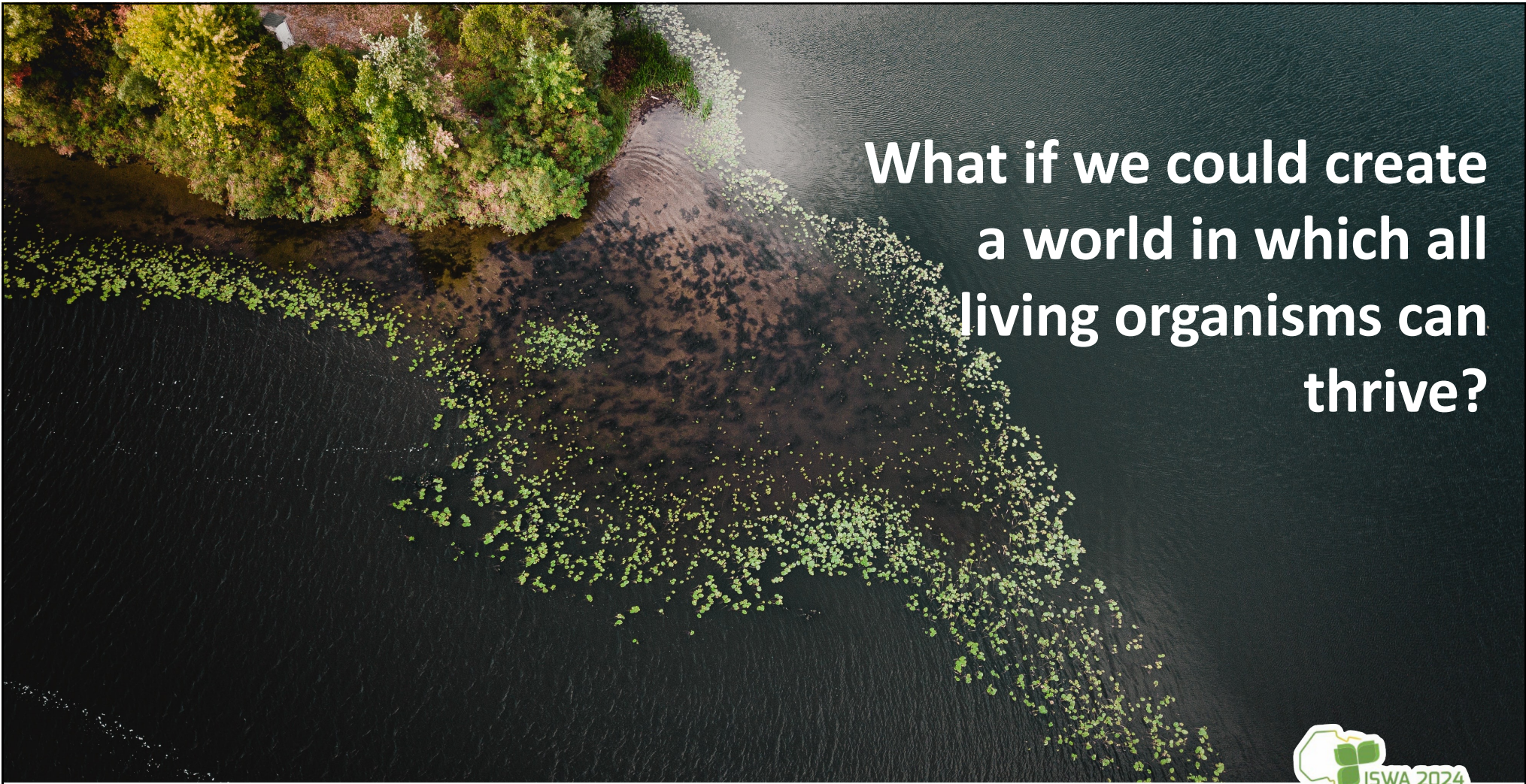


Figure: Examples of economic instruments in the product/waste value chain

# Future

## Re-imagining waste and economic growth



What if we could create  
a world in which all  
living organisms can  
thrive?



# DOUGHNUT ECONOMICS



Seven Ways to Think Like a 21st-Century Economist



# Solutions inspired by Nature

3.8 billion years of experience

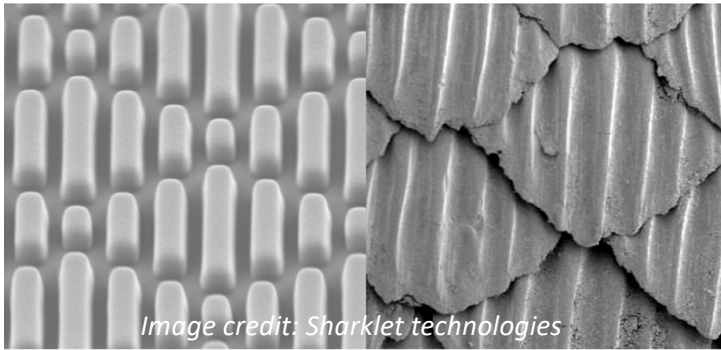


“All our inventions have already appeared in nature in a more elegant form and at a lot less cost to the planet.”

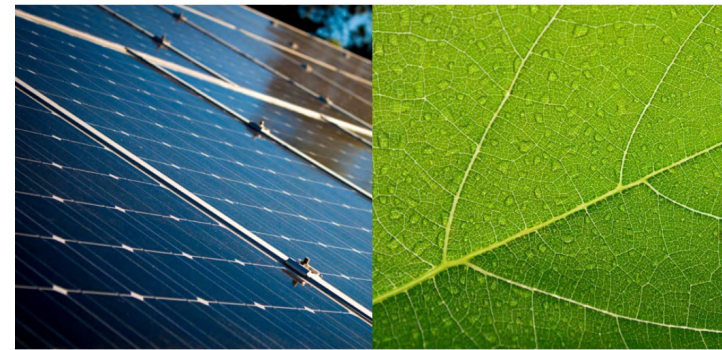
*Janine Benyus, Co-Founder of Biomimicry 3.8*



**Nanotechnology**



**Energy capture**



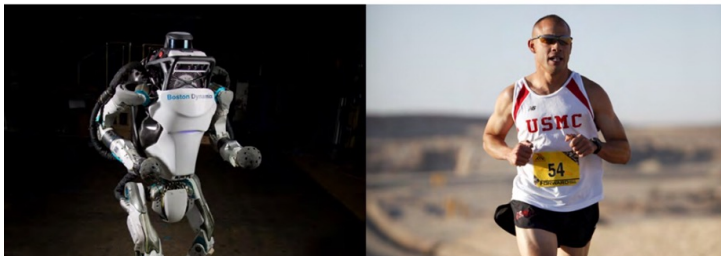
**Artificial Intelligence**



**Distributed blueprints**



**Robotics**



**Data storage**



# How Birds Inspired Flight



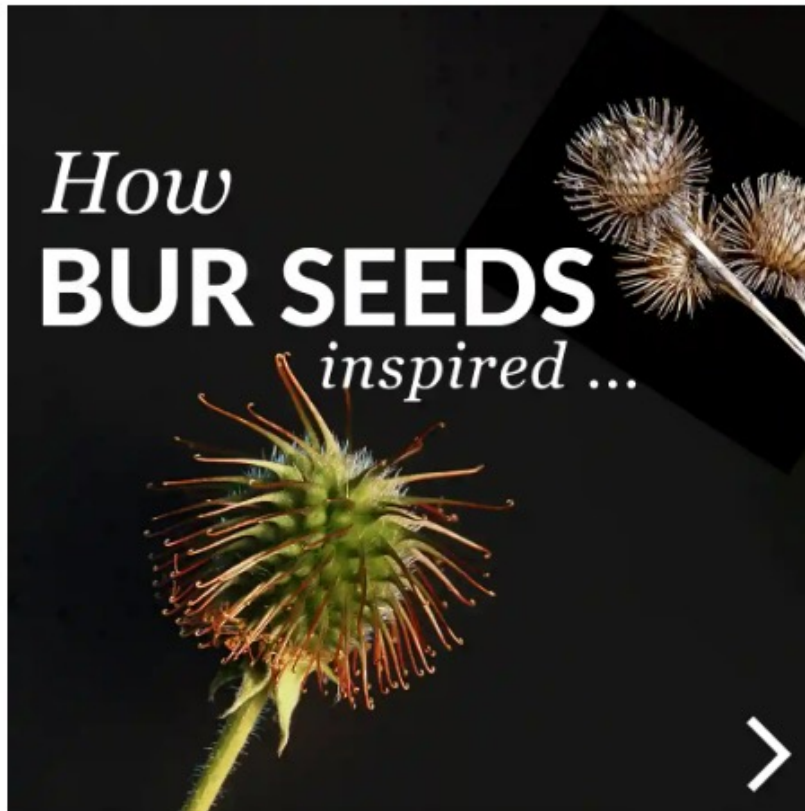
[The Best 50 Biomimicry Examples and Inventions of All Time \(learnbiomimicry.com\)](https://learnbiomimicry.com)

# How the Spiral Flow Inspired an Efficient Water Mixing System



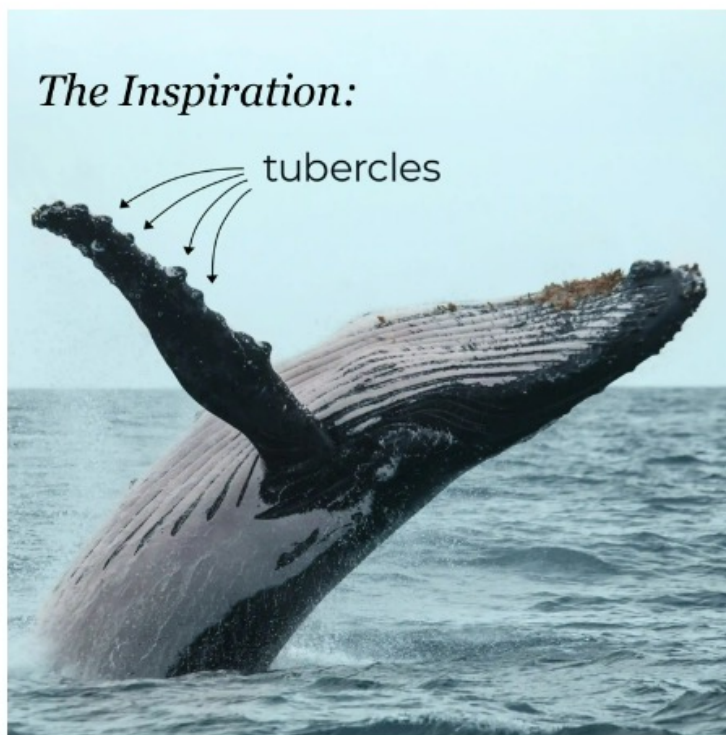
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# How Bur Seeds Inspired Velcro



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# How the Humpback Fins Inspired more Efficient Wind Turbines



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# How The Fungi Inspired Local Land Restoration And Toxic Waste Cleaning



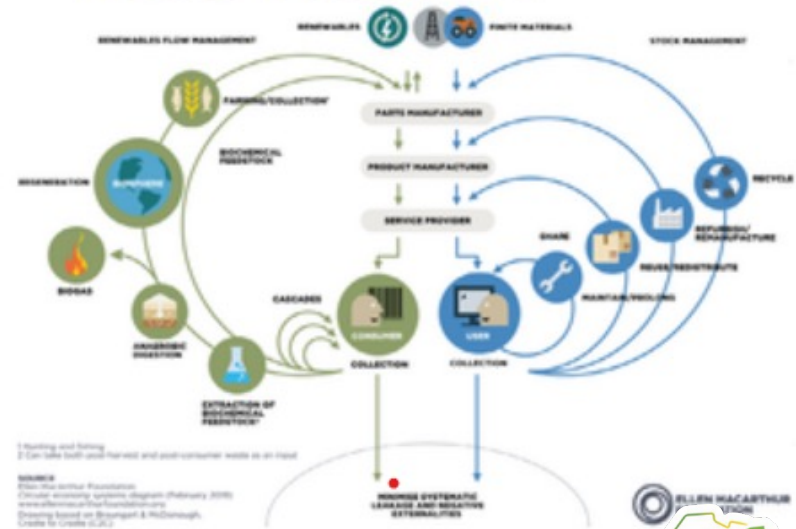
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# How Nature Inspired Circular Economy



## the CIRCULAR ECONOMY



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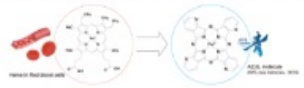


# The 10 Best Biomimicry Examples for 2024

*Leading Startups from the Ray of Hope Accelerator*

*How the hemoglobin inspired ...*  
**Azul Energy**  
 to create a rare metal-free catalyst.

**AZUL catalyst**  
 AZUL catalyst is a rare metal-free catalyst inspired by hemoglobin that can perform biological functions such as oxygen transport, electron transfer, and metal ion storage.



**AzulEnergy**

*How water birds' feathers inspired ...*  
**Cellulotech**  
 to create an eco-friendly waterproofing coating



*How electrogenic bacteria inspired ...*  
**Brokkr**  
 to extract cobalt and nickel in a low-impact way

	Stage 1	Stage 2	Recovery
Process	Bleaching	Metal Separation	Water & reagent recycling
Outputs	Greened cellulose & acid	Battery grade nickel and cobalt & iron by-product	
Applications	Construction materials	EV batteries	

*How cotton inspired ...*  
**Fiberly**  
 to create fibres from recycled textile waste

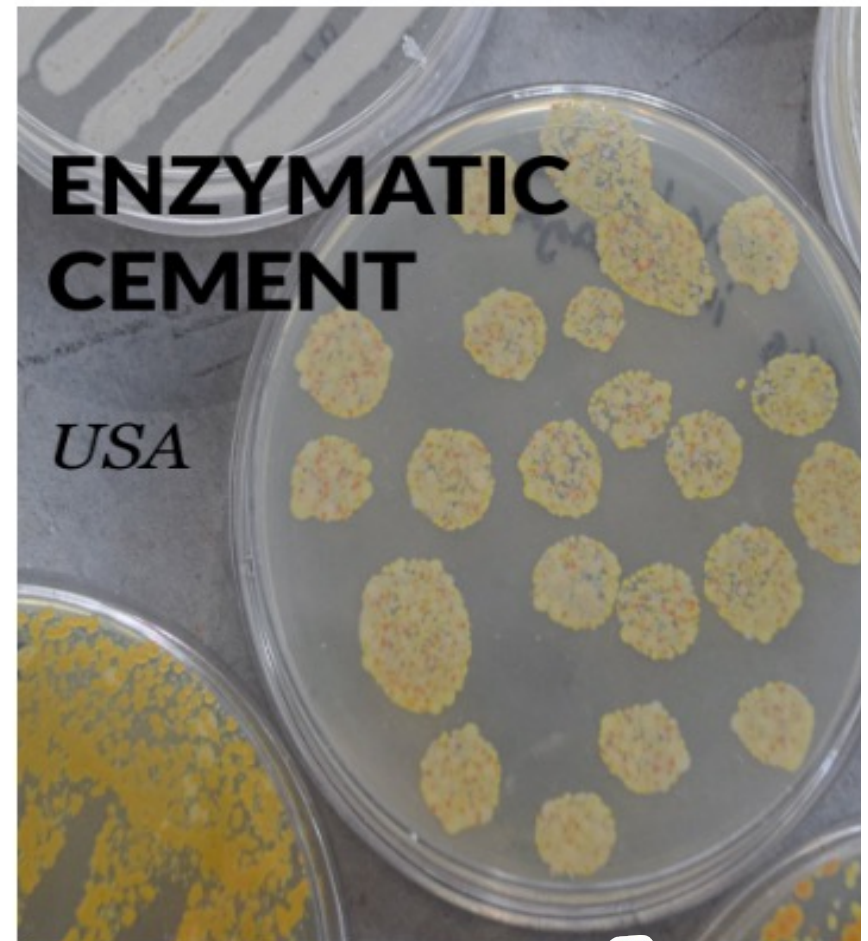


*How snail mucus inspired ...*  
**Gel Matter**  
 to create synthetic mucus lubricants



Source: 10 Biomimicry Examples for 2024 ([learnbiomimicry.com](https://learnbiomimicry.com))





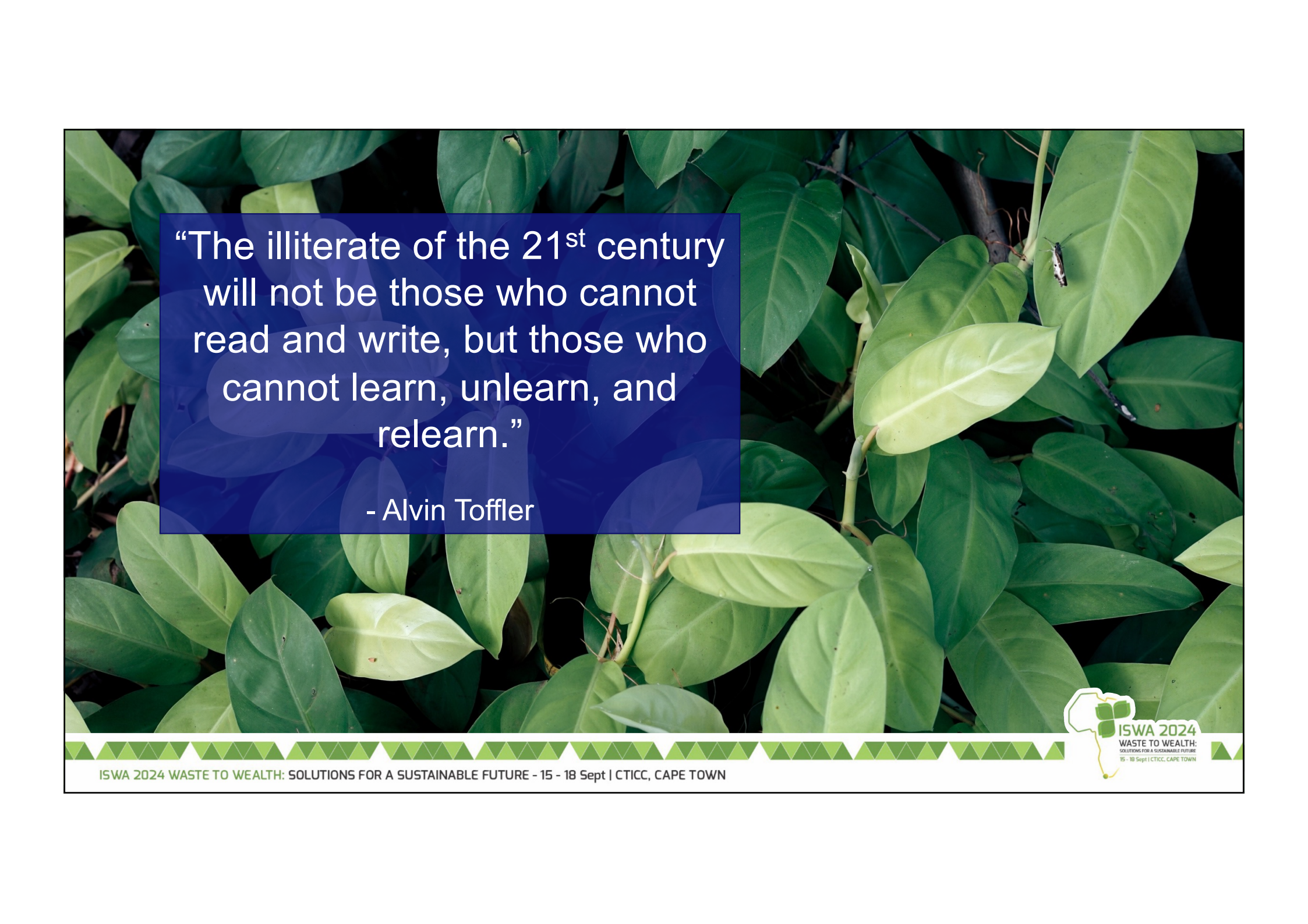
Source: [10 Biomimicry Examples for 2024 \(learnbiomimicry.com\)](https://www.learnbiomimicry.com/10-biomimicry-examples-for-2024/)



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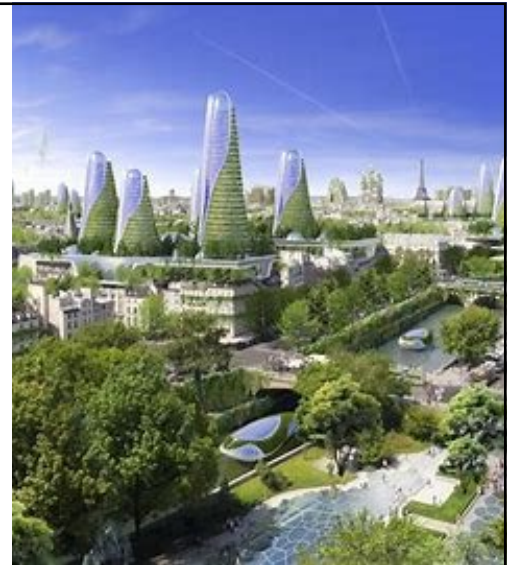


Source: 10 Biomimicry Examples for 2024 ([learnbiomimicry.com](https://learnbiomimicry.com))



“The illiterate of the 21<sup>st</sup> century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”

- Alvin Toffler



Can we create a future that combines the best of human intelligence with the best of nature's genius so all living organisms can thrive?

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# Thank You!

**Kate Stubbs**

Group Business Development &  
Marketing Director  
Interwaste (Pty) Ltd, South Africa

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