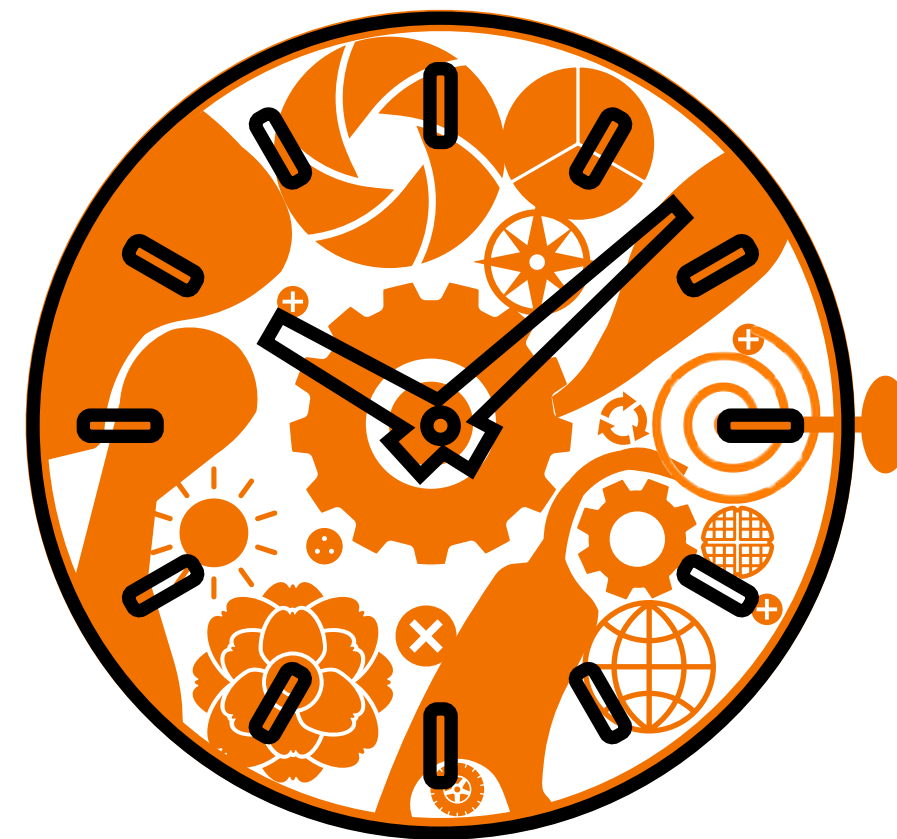


# The **Orange** Clockwork

**Dutch** Companies, Institutions, Products and Experiences  
on waste management and circular economy  
connecting to Asia

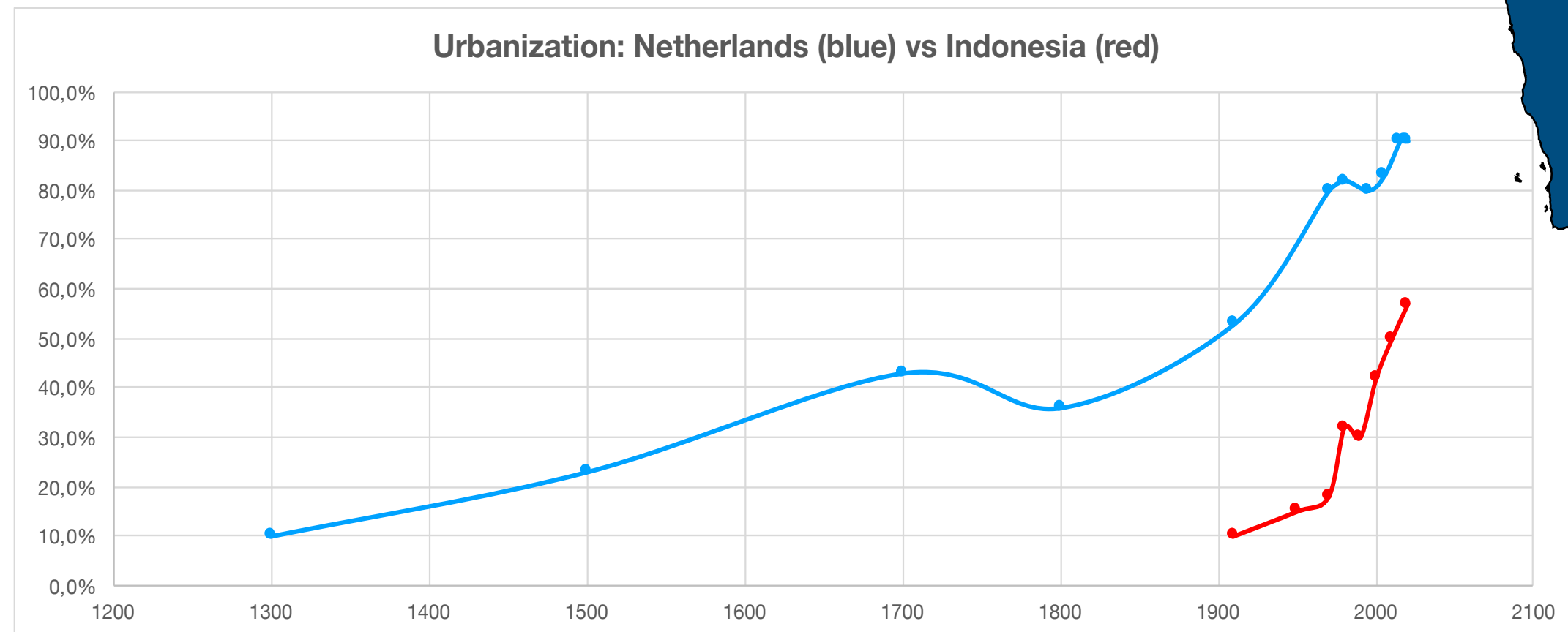


Online presentation for ADB  
On behalf of the Netherlands Enterprise Agency  
By Hans Breukelman, BreAd B.V.  
January 13th, 2022

# The Orange Clockwork

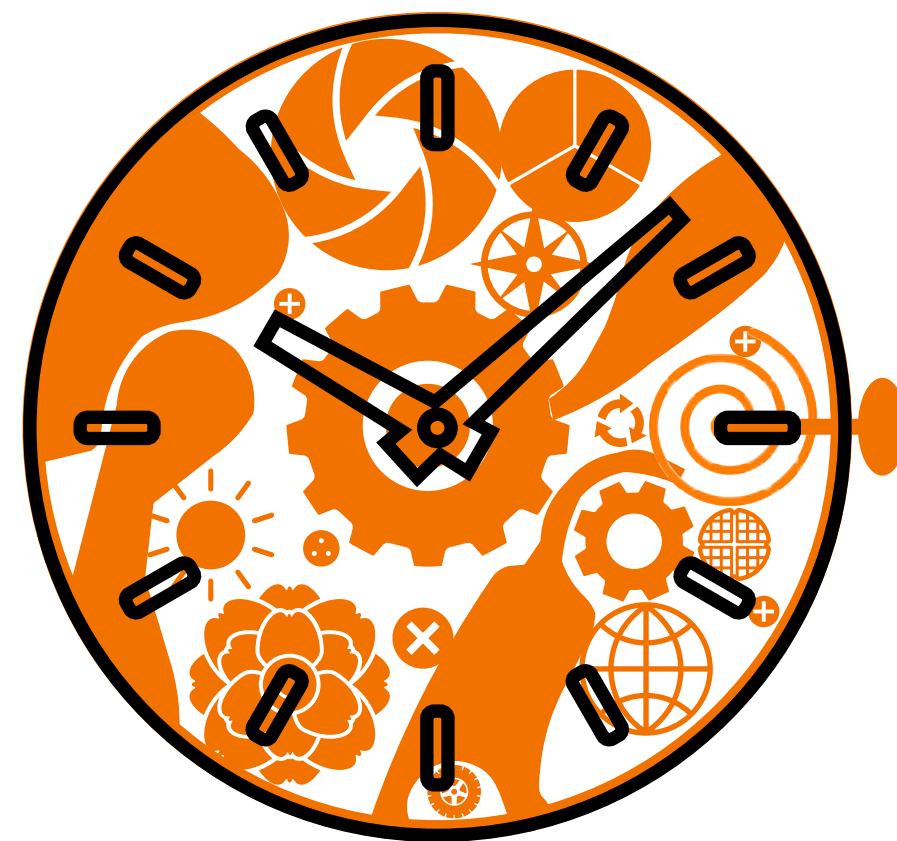
The Netherlands:  
Some background and perspective

A size like Bhutan  
A population like Kazakhstan  
A GDP like Indonesia  
And exports like South Korea



# The **Orange** Clockwork

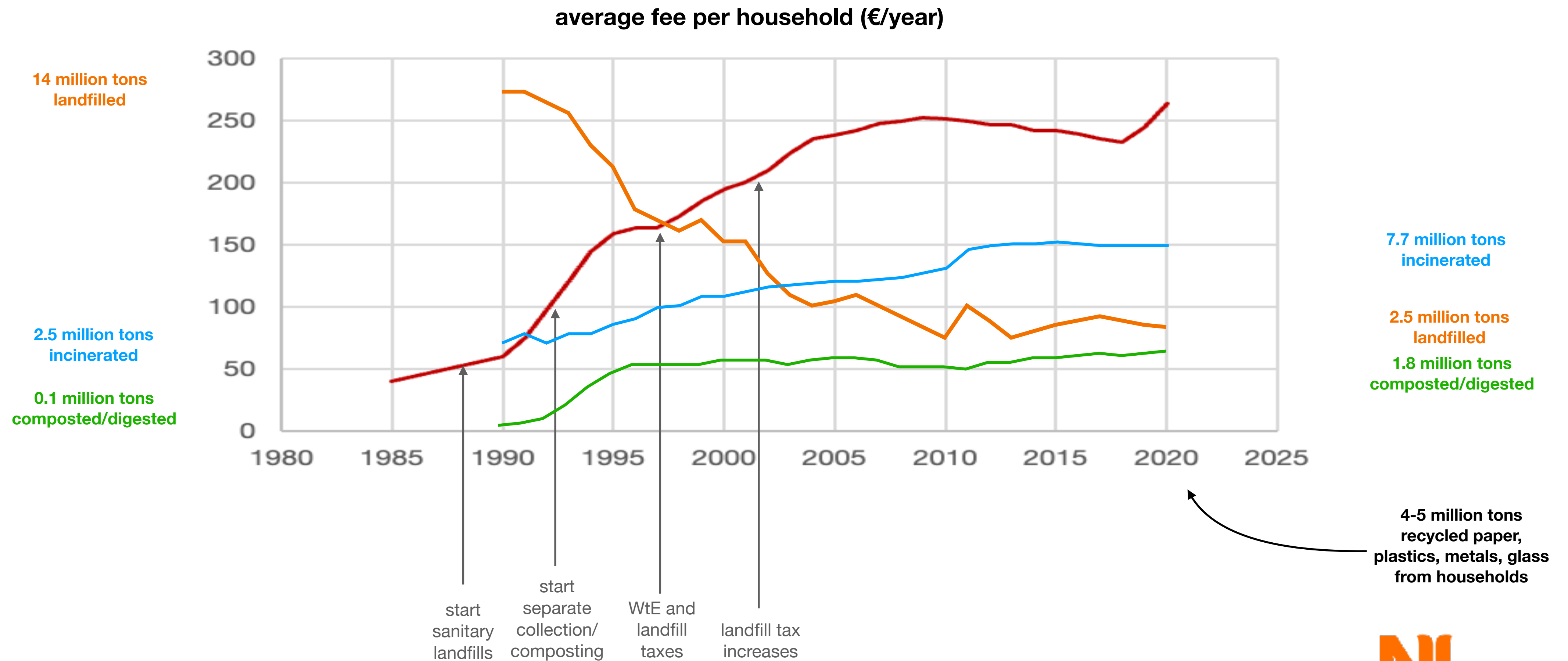
Integrated waste management - a clockwork?



It's a needed utility  
with many actors,  
working closely together  
within a defined space,  
energised from outside  
to deliver results  
and to move ahead

# The Orange Clockwork

## Fees, Waste Management and Circularity



# The Orange Clockwork

All actors have their roles

Nothing without laws, regulations and incentives

Municipalities are the anchors and linking pins

No hardware, recycling and progress without companies

Public is enabled, educated, enforced and rewarded



National government

Municipalities

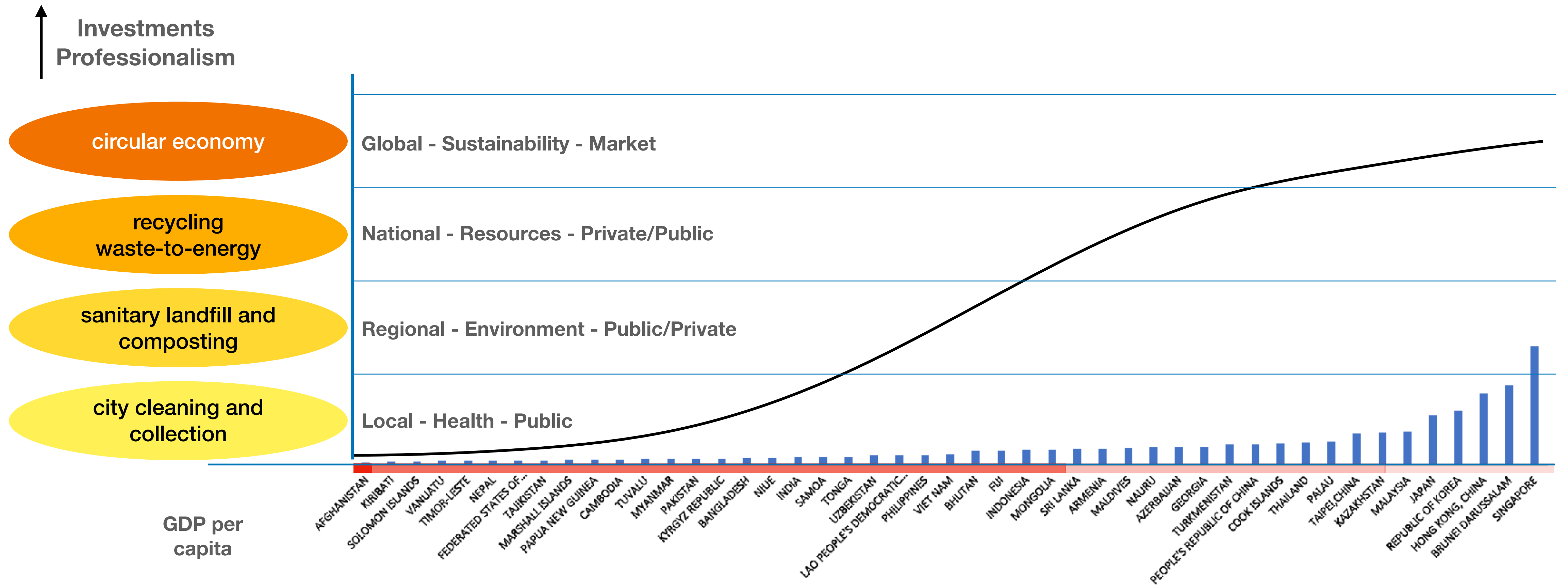
Service providers

Beneficiaries



# The Orange Clockwork

Our lessons learned, in a developing world -1



# The Orange Clockwork

Our lessons learned, in a developing world -2



It starts with cities



Clean cities - clean seas



Taking care of the SWM backbone



Balancing technology and labour



Finances are key



Arranging governance and political support



Focussing on Total Cost of Ownership



It's affordable and doable



Gatefees fire up recycling



# Rolling out the **value** chain





# The Orange Clockwork

**Cleaning, Collection  
and Transfer**



PROCOMAT B.V.



VDL TRANSLIFT



Geesinknorba  
Group



HYVA  
We move your world

Smart street waste bins

Singapore

First class collection vehicles  
and compactors

Singapore, Hong Kong, Indonesia,  
Qatar, Dubai, Bahrein and Turkey

Sideload and cranesystem  
collection vehicles

Exporting worldwide

Garbage compactors and  
transfer stations

Thailand, Vietnam, Singapore,  
Malaysia, Indonesia

# The Orange Clockwork

## Recycling



Tunnel composting, handling and air treatment systems

China, Korea, Vietnam and India



Consulting and DBIT of sorting facilities

Office in India, 11 projects in India and 1 in Indonesia



Separation facilities and waste to protein facilities

Several projects in SE Asia



Tyre recycling and tyre recycling facilities

Not yet in Asia



OEM for destruction, dewatering and BSF proteins

Office in India, 160 projects in 18 Asian countries



DBO of facilities for bio treatment and RDF production

Office in Myanmar, projects in Indonesia, China and Myanmar



Plastics recycling

Not yet in Asia









Aerosol can recycling units and gas cleaning technology

Offices in Thailand and Indonesia

# The Orange Clockwork

## Waste-to-Energy and Landfills

 <b>HARVEST</b> WASTE	High efficiency Waste to Energy projects	Offices in Manila, Karachi, Delhi and Palestine
 <b>Blue Phoenix Group</b> Building a sustainable future	Processing of bottom ash and metals, minerals valorisation	Singapore and Australia
 AFVALZORG	Consultancy and training on landfill and gas management	Several projects in Indonesia and Myanmar
 <b>MULTRIWELL</b> DURABLE GAS EXTRACTION	Landfill gas extraction systems	Not yet in Asia
 <b>TRISOPLAST</b> MINERAL LINERS	Mineral liner applications on landfills	Projects in China, Malaysia and Singapore
 <b>HOFSTETTER</b> GAS CONVERSION TECHNOLOGY	Landfill gas extraction, treatment and flares	Projects in Taipeh, Indonesia, Malaysia, Thailand, Vietnam, Cambodia, China and Hong Kong

# The Orange Clockwork

Research, Consultancy  
and Financing

**AEBEL**

Consultancy and investments on waste management and port operations

Office in Indonesia.  
Projects in 16 Asian countries

**Deltares**

Consultancy on plastic waste dispersion modelling

Office in Indonesia, Singapore and Hanoi

Open Universiteit 

Research and training on marine litter waste management and CE

Indonesia and Cobsea region

**InvestInternational**

Funding to support export and G2G project support

Projects in most LMICs in Asia



Consultancy, PPP facilitator and content provider in CE

Projects in Indonesia, Malaysia, China, Singapore, Thailand, Japan, Vietnam and Taipeh



Circular strategies consultancy and tech applications

Not yet in Asia

**MetaSus**  
EUROPEAN SUSTAINABLE SOLUTIONS

Export promotion for waste management and CE

Projects in Myanmar and Iran



Waste management consultancy for cities and regions

Projects in Cambodia, Myanmar, Turkey, Saudi Arabia, Palestine and Lebanon

# Where in the **value chain**



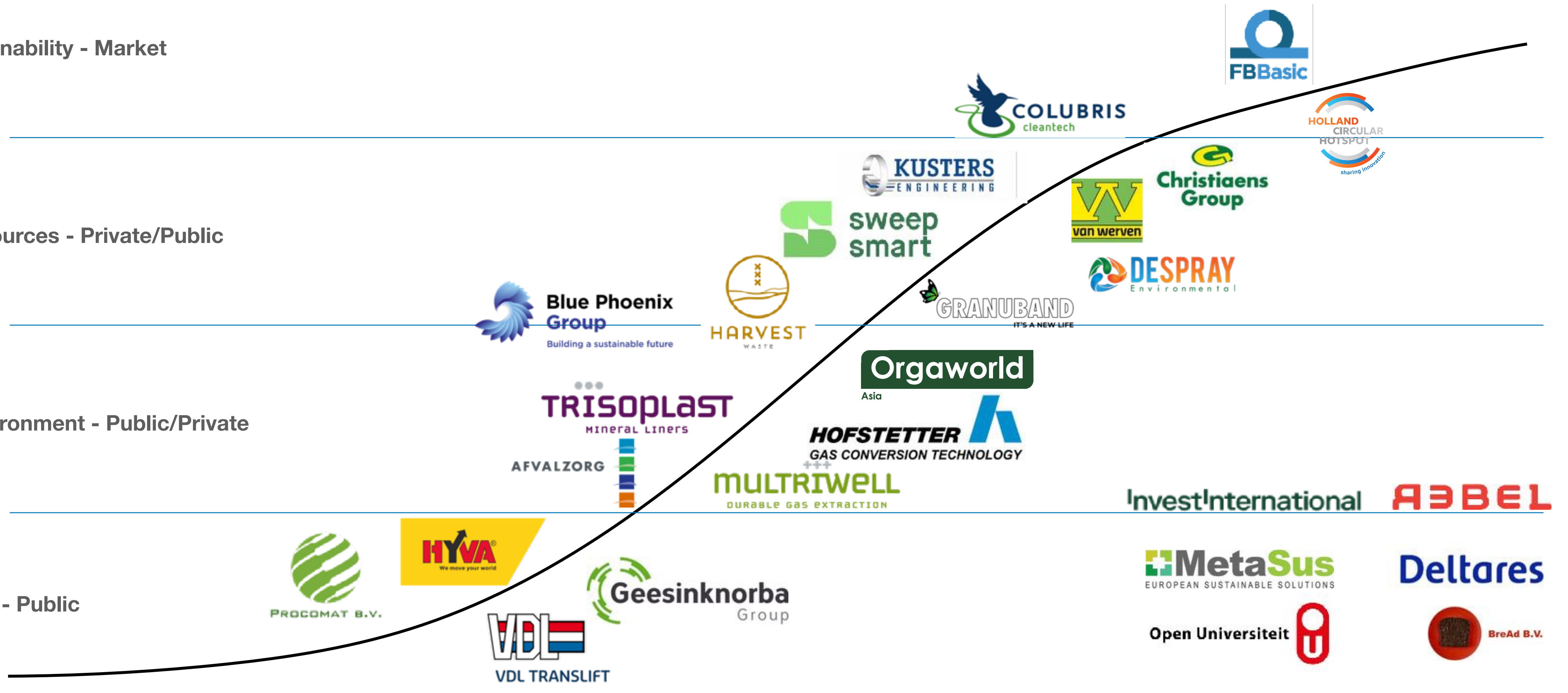
# Where in the **development stages**

Global - Sustainability - Market

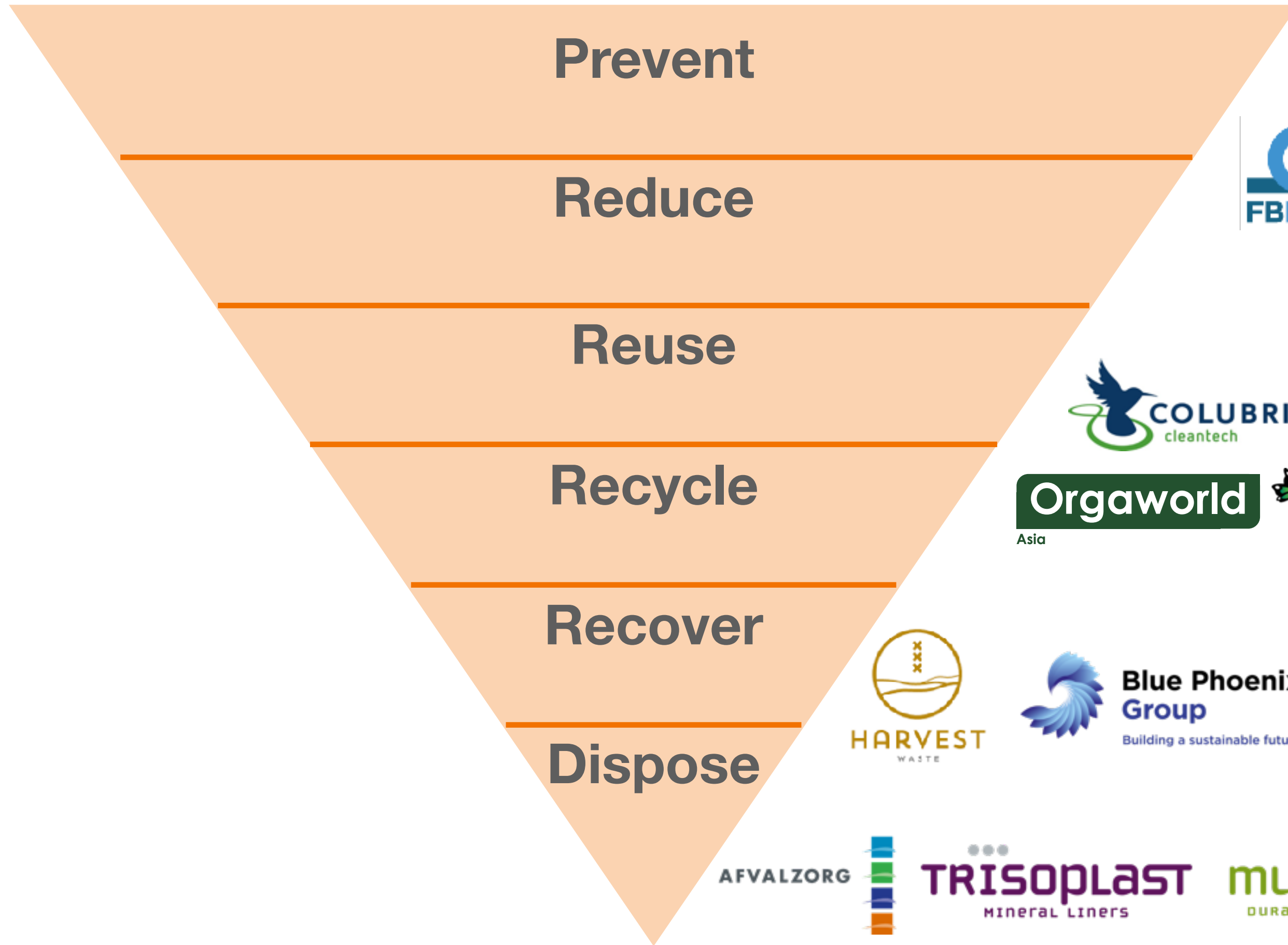
National - Resources - Private/Public

Regional - Environment - Public/Private

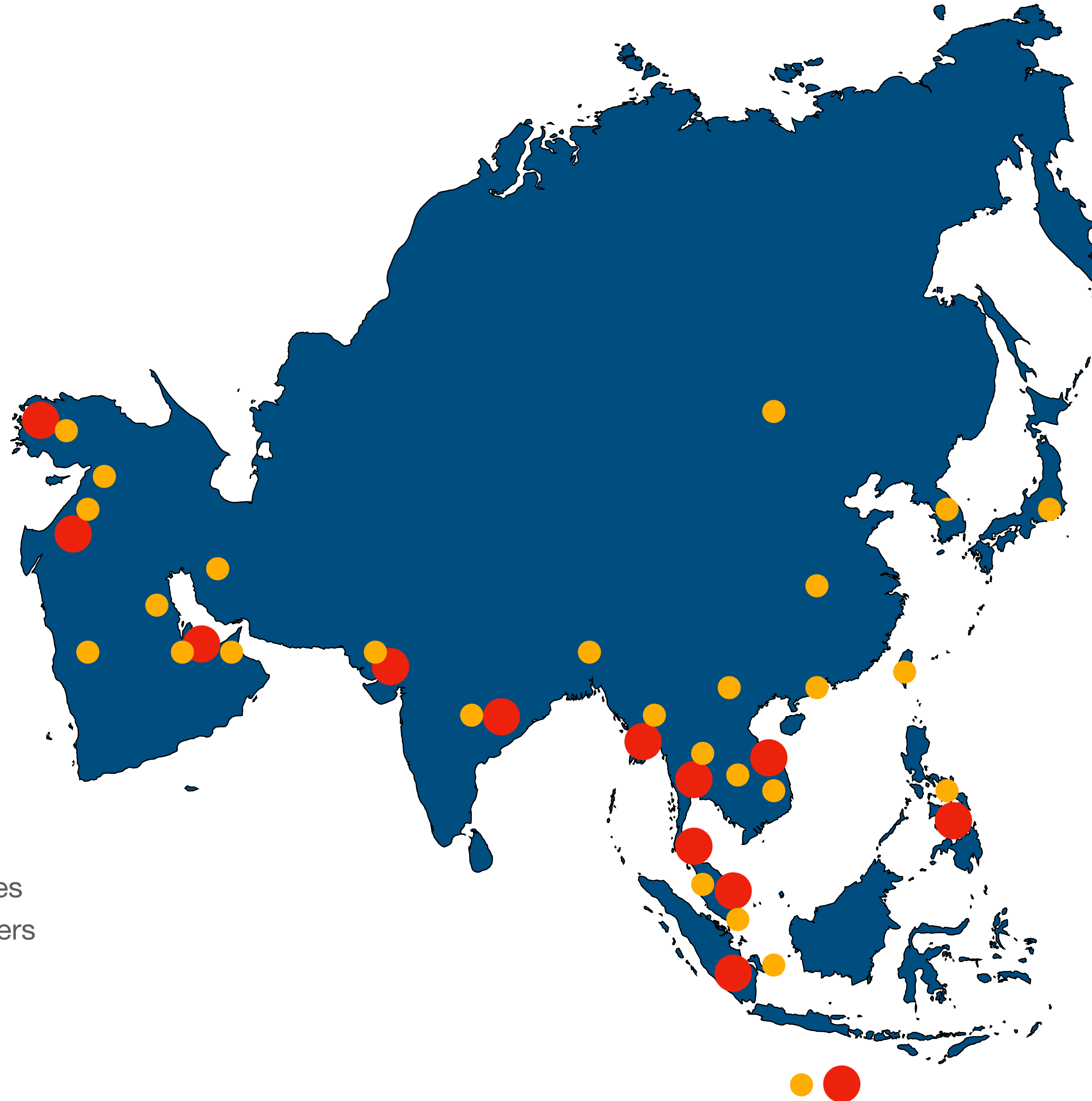
Local - Health - Public



# Where in the **waste hierarchy**

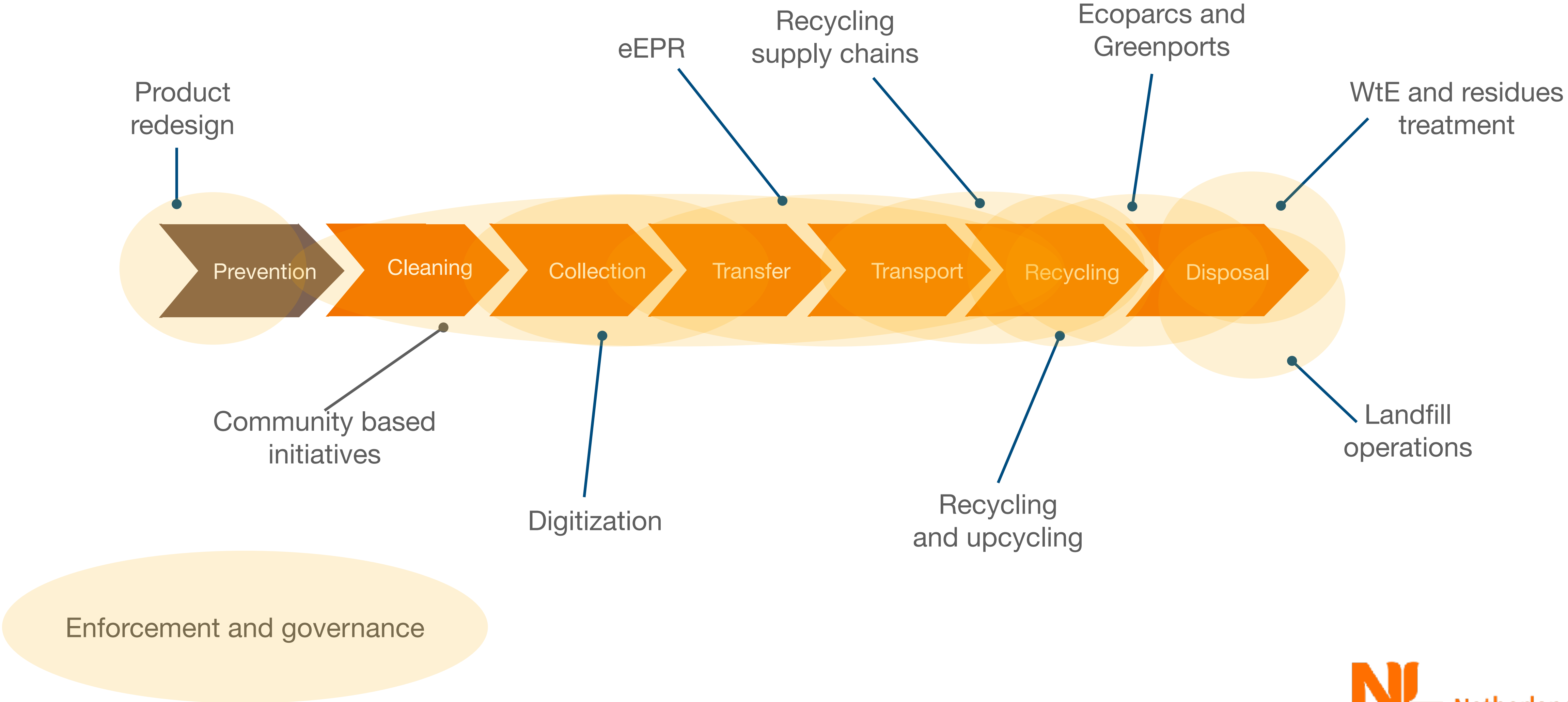


# Where in Asia and Pacific





# Our appraisal of ADB's pathways and flagships



## Our solutions

There's no leapfrogging and there are no panaceas

It's hard work and joint efforts

A collaborative Public-Private approach is key

Solutions have to be tailored per country

Coalitions have to be customised

We focus on quality, proven technology and total cost of ownership

We add knowledge and long-term cooperation

# Let's work **together** 1

## Coalitions fitting ADB's priorities

Plastics dispersion,  
monitoring and  
mitigation studies



International best practices  
Crosscutting studies  
International networks

Product redesign and  
circular concepts



First hand EU experiences  
e-Concepts  
International platforms

Community  
based initiatives



Experience based  
Developing countries  
Awareness

Smart supply  
chains



e-Connected concepts  
Automation  
Low Cost of Ownership

# Let's work together 2

## Coalitions fitting ADB's priorities

**Proven recycling concepts**

General and specific solutions  
 Integrated supply and sales  
 Labour/investments balance

**Green ports and Ecoparks, WtE and residues**

High efficiencies  
 DFBOM  
 Proven concepts

**Methane mitigation and landfill operations**

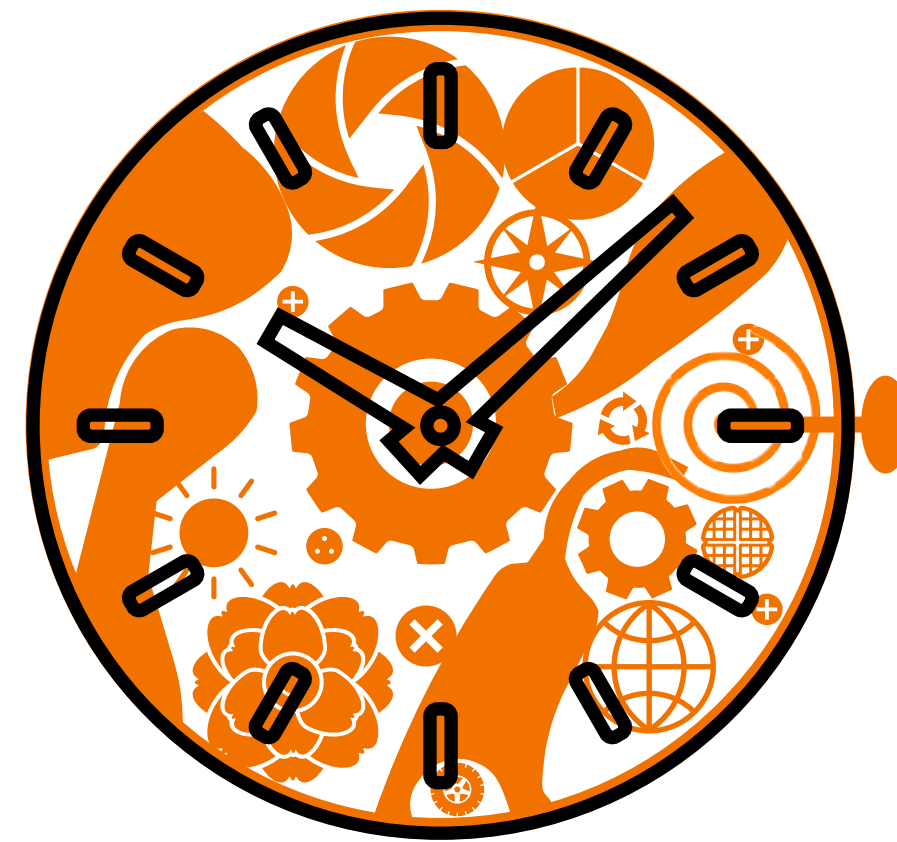
COP26 priority  
 Integrated solutions  
 Proven concepts

**Masterplanning, financing and promotion**

EPR and financial instruments  
 Enforcement and governance  
 Cross-cutting support

# The **Orange** Clockwork

A collaborative approach to waste management



Thank you for your attention