

GEF LAC CITIES: TOWARDS A PLASTIC CIRCULAR ECONOMY AT THE CITY LEVEL IN LAC COUNTRIES

Regional Session on Downstream Solutions

Good practices on downstream
innovations and solutions to collect and recycle



July 2025



CONTENT – DOWNSTREAM SOLUTIONS

1. Introduction to main concepts

Feedback from the participants: What are current downstream challenges in your city?

1.1 What are downstream interventions and why they are important?

1.2 What are current trends in downstream interventions?

2. Good practices on collection and recycling solutions

2.1 *Collection*

2.2 *Recycling*

Feedback from the participants: Which good practices inspire you most to support circular transition and downstream innovation in your city?

3. Final remarks and recommendations

4. Next steps



1. INTRODUCTION TO MAIN CONCEPTS AND TRENDS



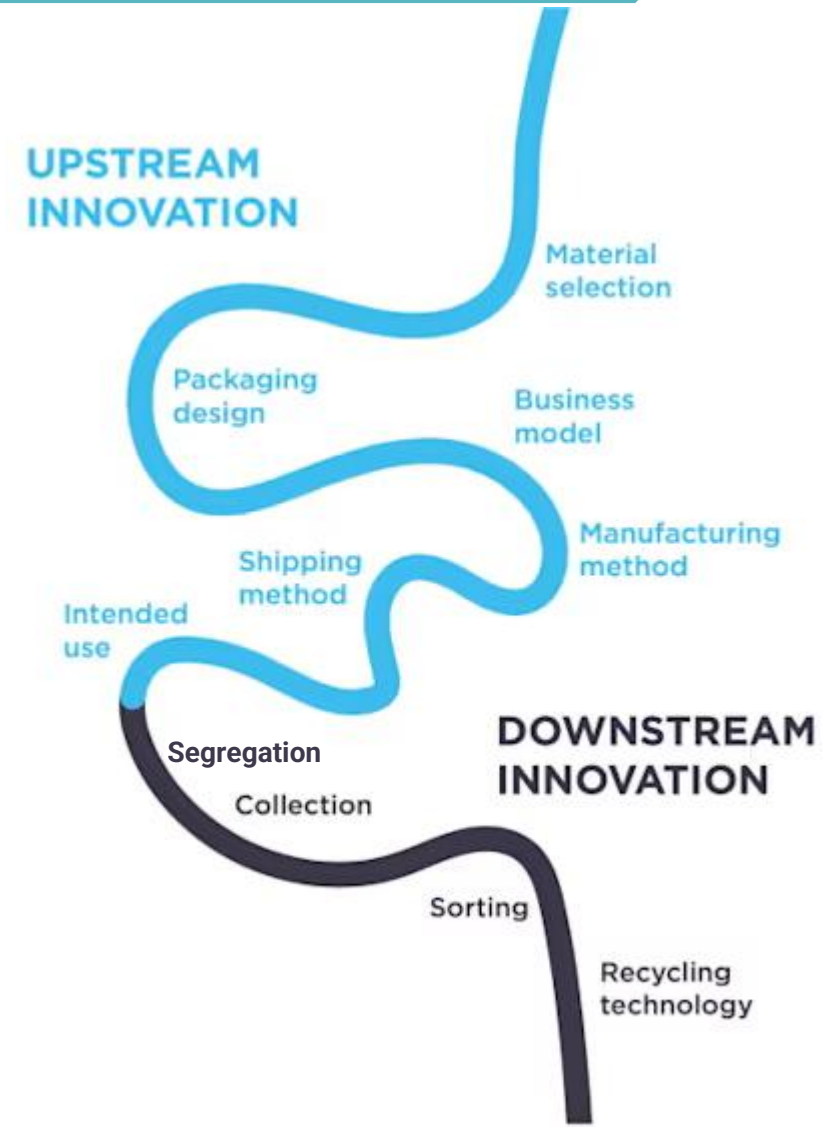
1.1 What is the difference between upstream and downstream innovation?

► Upstream Innovation:

Rethinks products and services at the design stage. For example, this can include developing new materials, product designs, or business models.

► Downstream Innovation:

Affects a product or material after its first use. For example, this can include developing a new collection, sorting, and recycling technologies.



1. Introduction to main concepts

Join at menti.com | Use code 9313 6721

Mentimeter

What are the main current downstream challenges in your city? 1 related to **collection**, 1 related to **recycling** and please include your country/city)

No household collection

Collection: No separate collection for recyclables

Separación en la fuente

Collection- there are not enough designated places for people to dispose waste and not a planned schedule- Panama City

Lack of facilities for collection services and recycling. Lack of sensitisation towards recycling and separation of waste. Montego Bay, Jamaica

Los químicos que contienen los materiales

La recolección segregada en la fuente, ciudad de Panama

Recycling not happening for most waste streams so low awareness / interest (vicious cycle)

1.1 Why is advancing in downstream solutions so important?



Municipal solid waste is generated wherever there are human settlements. More of it is being created every year, contributing to the **triple planetary crisis** of **climate change, pollution and biodiversity loss**.

The amount of this waste that is produced, and whether it becomes pollution, depends on **three factors**:

01

The design of products, which determines which materials and how much of these materials are used, as well as whether products can be reused, repaired, or easily recycled at the end of their useful life.

02

Citizens' decisions on how they buy, use and discard products and materials, and whether they choose to reduce, reuse, repair and recycle.

03

The capacity of local waste management systems to collect, sort, and recycle or dispose of waste safely, and the availability of reuse and refill systems that prevent waste.



1.1 Why is advancing in downstream solutions so important?

Waste's contribution to the triple planetary crisis pollution, climate crisis, biodiversity loss

Climate crisis

The collection, processing and disposal of solid waste generates carbon dioxide (CO₂) and other greenhouse gases and air pollutants, including methane (CH₄) released from waste disposal sites and black carbon emitted from open waste burning.

Pollution

Long-term pollution by waste, one of the main drivers of biodiversity loss, puts the integrity of ecosystems at risk. For example, waste disposed of on land can cause long-term pollution of freshwater sources by pathogens, heavy metals, endocrine-disrupting chemicals and other hazardous compounds.

Biodiversity loss

Open burning of waste releases Unintentional Persistent Organic Pollutants (UPOS), "forever chemicals" that can be transported long distances in the air, concentrate in the food chain, and have significant negative effects on wildlife and human health including cancer and infertility.



1.1 Why is advancing in downstream solutions so important?

The **Global Waste Management Outlook 2024** provides an overview of the amount of municipal solid waste being generated, how it is being managed, and the impacts of current practices on planetary and human health.

Three scenarios of waste generation and management to 2050 were developed for this report:

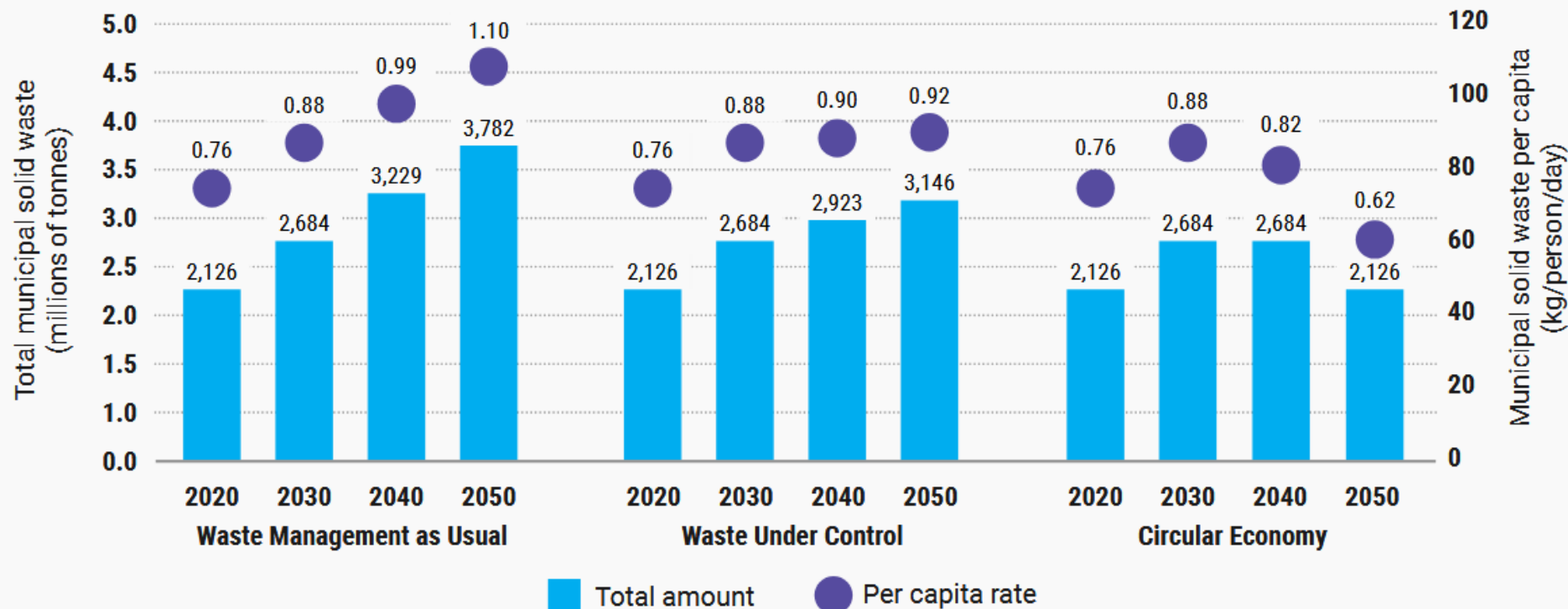
Waste Management as Usual (WMU)	Waste Under Control (WUC)	Circular Economy (CE)
Practices continue as today, with waste generation projected to grow fastest in regions without adequate waste management capacity.	A midway point, with some progress made towards preventing waste and improving its management.	Waste generation decoupled from economic growth, with the global MSW recycling rate reaching 60 per cent and the remainder managed safely.



The report reveals the true costs of waste and proposes actionable steps towards a zero waste future.

1.1 Why is advancing in downstream solutions so important?

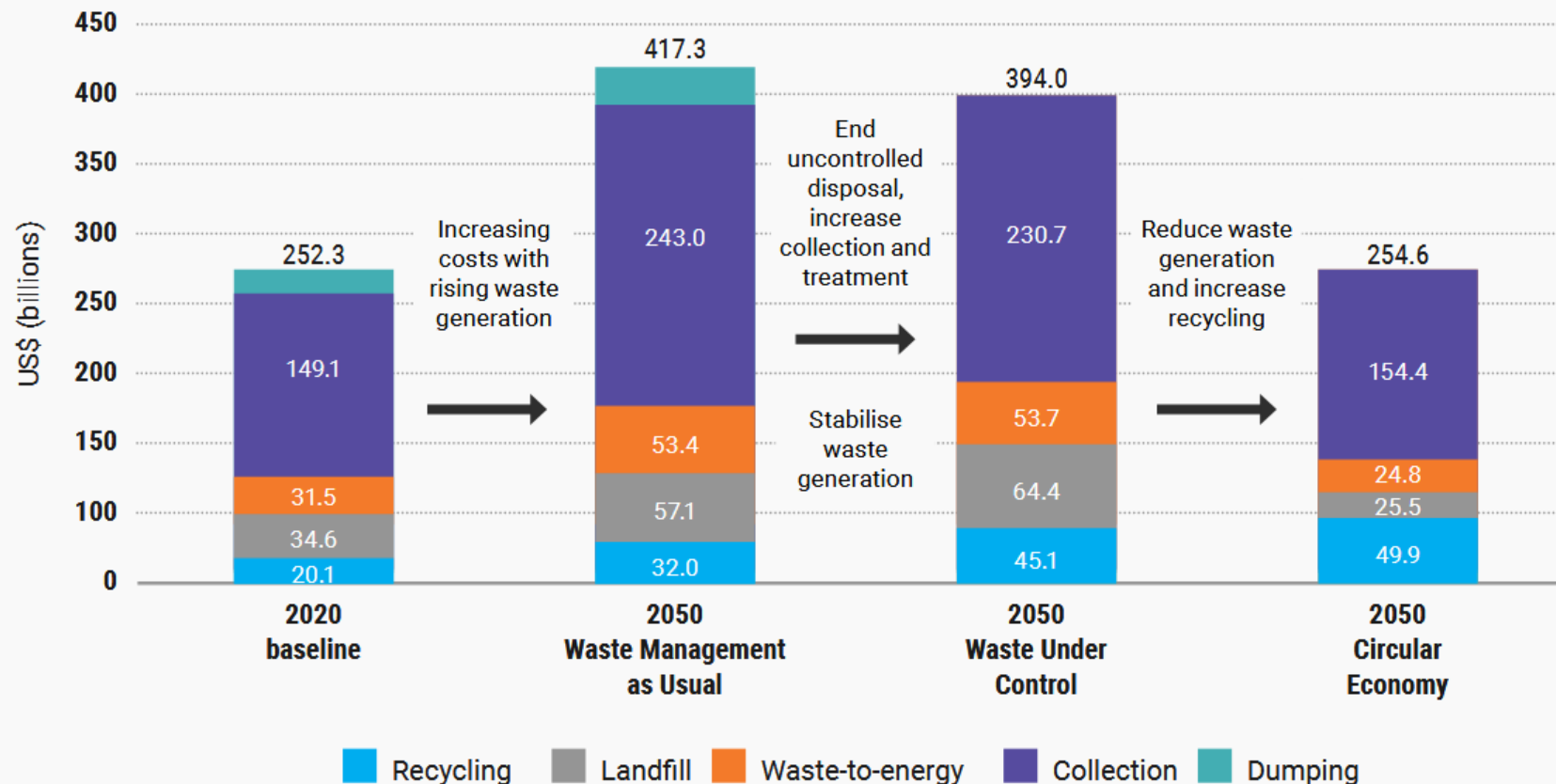
Figure 20: Comparative analysis of the three scenarios for global municipal solid waste generation.



Municipal solid waste generation is predicted to grow from 2.1 billion tonnes in 2023 to 3.8 billion tonnes by 2050.

1.1 Why is advancing in downstream solutions so important?

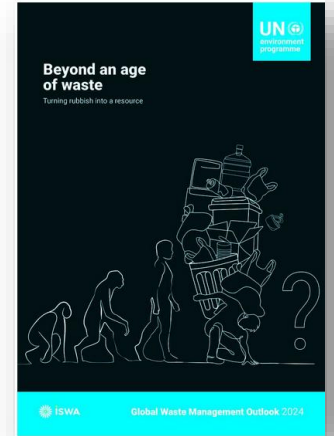
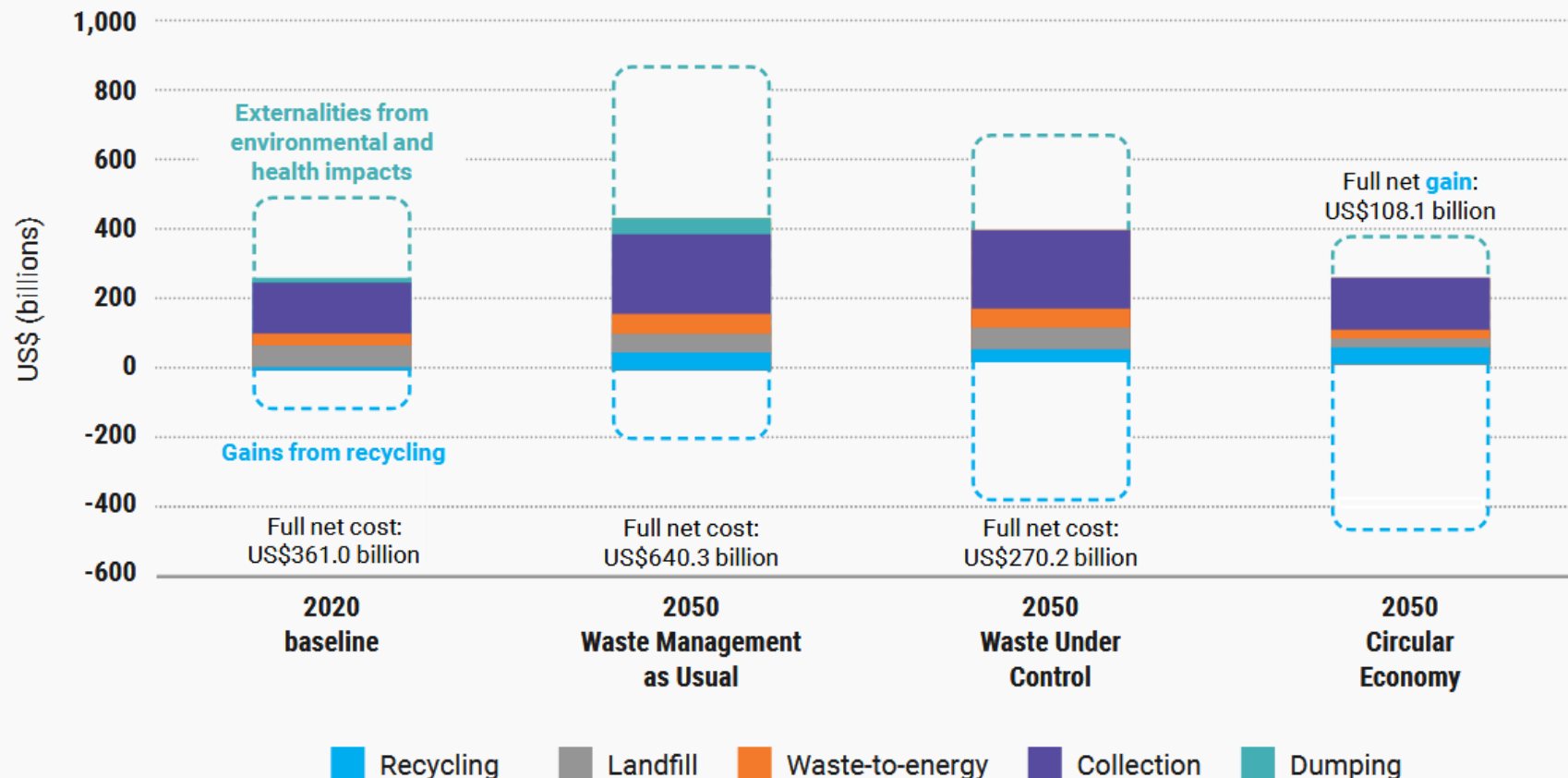
Figure 24: Global direct costs of municipal solid waste management in 2050 under the three scenarios (US\$ 2020).



In 2020, the global direct cost of waste management was an estimated USD 252 billion.

1.1 Why is advancing in downstream solutions so important?

Figure 25: Overall cost of global waste management under the three scenarios (US\$ 2020).



When factoring in the hidden costs of pollution, poor health and climate change from poor waste disposal practices, the cost rises to USD 361 billion.

Without urgent action on waste management, by 2050 this global annual cost could almost double to a staggering USD 640.3 billion.

1.1 Why is advancing in downstream solutions so important?

The System Change Scenario reduces 80% of plastic pollution by 2040

through the immediate implementation of eight complementary system interventions across the plastics value chain

REDUCE WASTE EXPORTS
into countries with low collection and high leakage rates by 90% by 2040

REDUCE MARITIME SOURCES
of ocean plastic pollution such as from fishing and shipping

1 REDUCE
growth in plastic consumption to avoid nearly **one-third** of projected plastic waste generation by 2040

2 SUBSTITUTE
plastic with paper and compostable materials, switching **one-sixth** of projected plastic waste generation by 2040

3 DESIGN
products and packaging for recycling to expand the share of economically recyclable plastic from an estimated 22% today to 54% by 2040



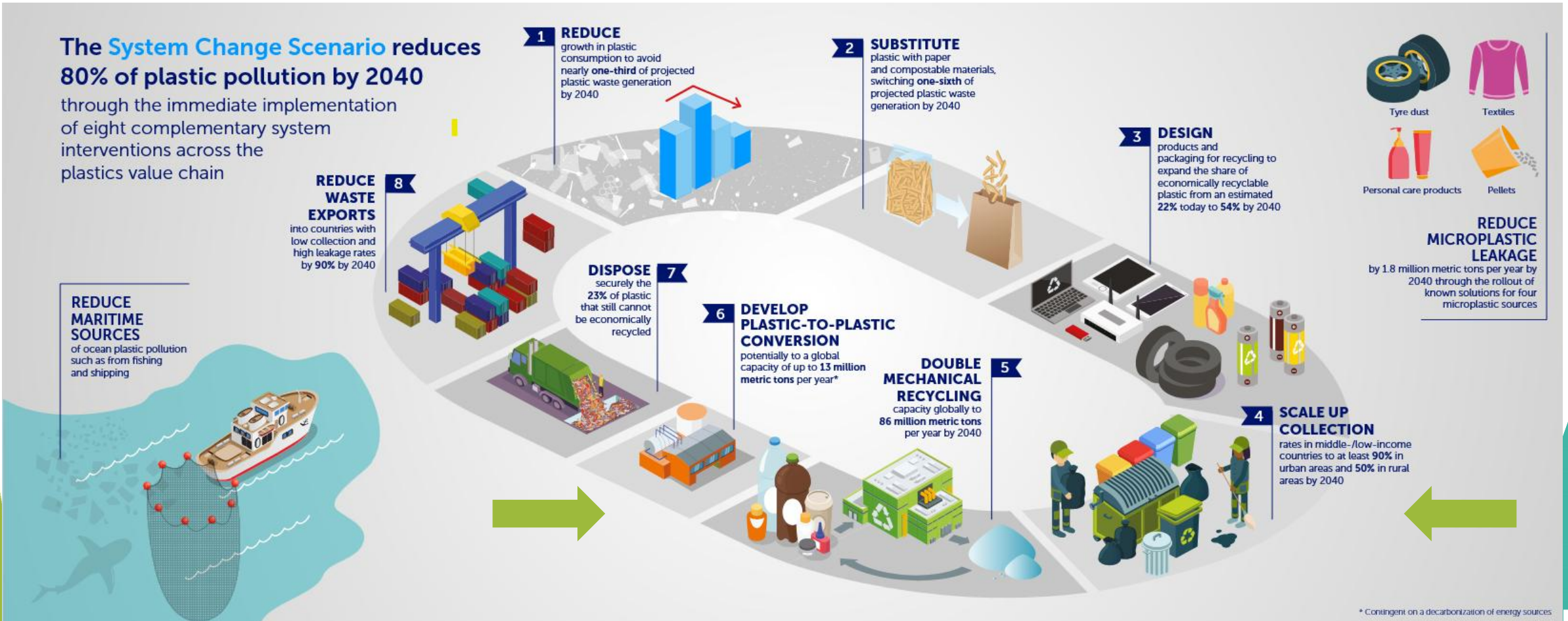
REDUCE MICROPLASTIC LEAKAGE
by 1.8 million metric tons per year by 2040 through the rollout of known solutions for four microplastic sources

7 DISPOSE
securely the 23% of plastic that still cannot be economically recycled

6 DEVELOP PLASTIC-TO-PLASTIC CONVERSION
potentially to a global capacity of up to 13 million metric tons per year*

5 DOUBLE MECHANICAL RECYCLING
capacity globally to 86 million metric tons per year by 2040

4 SCALE UP COLLECTION
rates in middle-/low-income countries to at least 90% in urban areas and 50% in rural areas by 2040

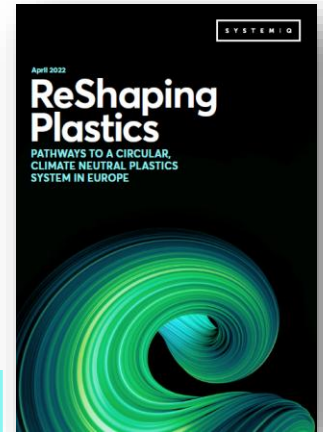
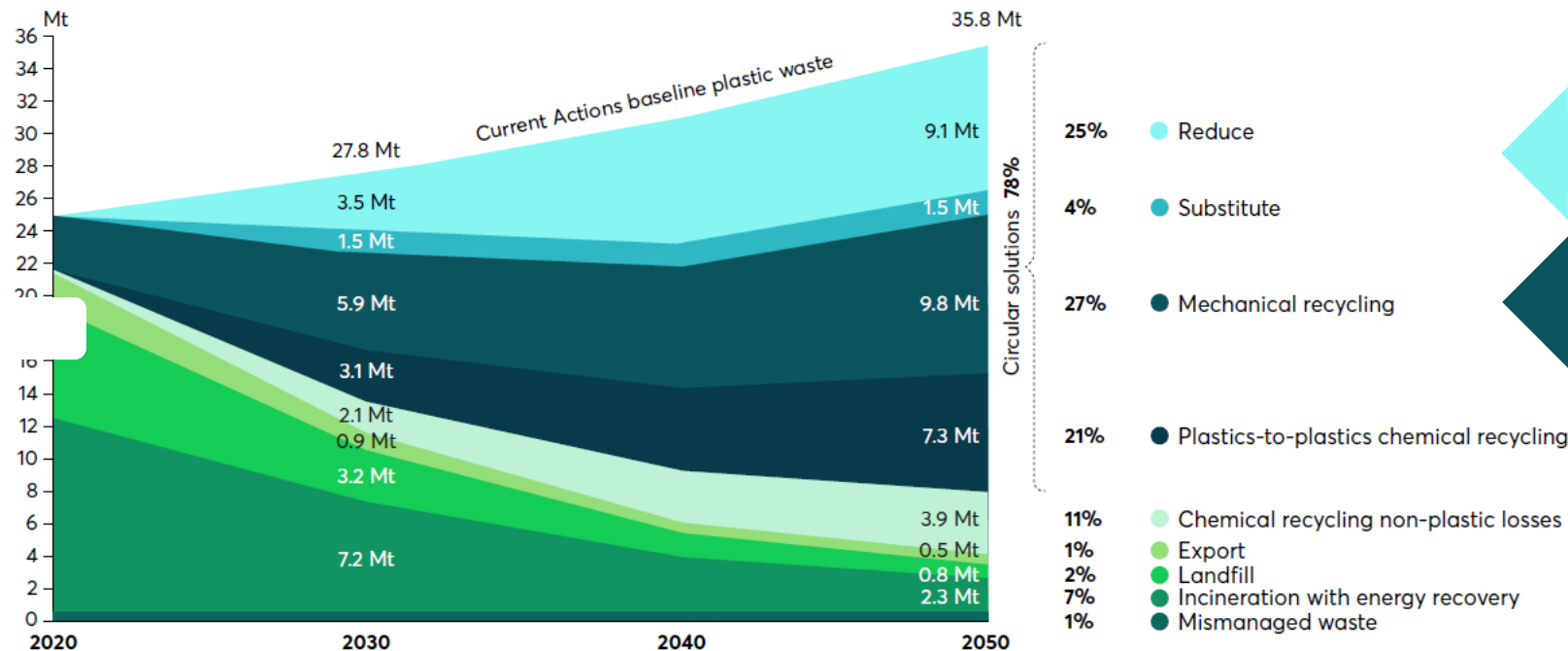


* Contingent on a decarbonization of energy sources

1.1 Why is advancing in downstream solutions so important?

By 2050, the Plastics system could achieve 78% circularity with 30% of waste avoided through reduction and substitution and 48% being recycled, leaving 9% in landfills and incinerators

Physical fate of plastic waste from packaging, household goods, automotive and construction 2020-2050 (Mt)



Source: "ReShaping Plastics" model

Source: https://www.pewtrusts.org/-/media/assets/2020/10/breakingtheplasticwave_mainreport.pdf

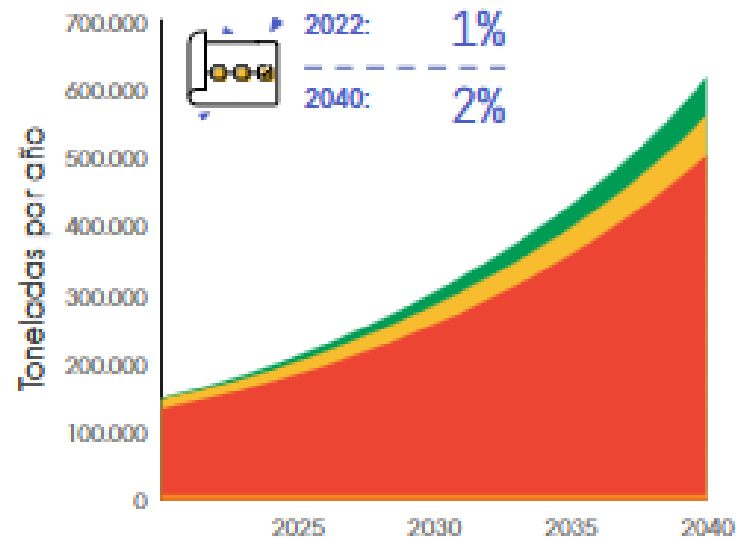
1.1 Why is advancing in downstream solutions so important?

Change Scenario for Panama



Escenario de Negocio Habitual

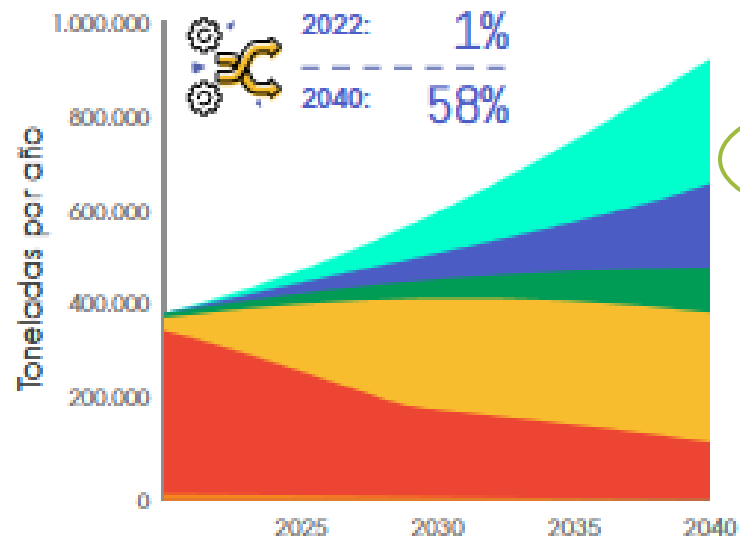
Porcentaje de circularidad*



- Reducido 0%
- Sustituido 0%
- Reciclado 2%
- Dispuesto 9%
- Gestión inadecuada 89%
- Exportado 0,5%

El Escenario de Cambio

Porcentaje de circularidad*



- Reducido 29%
- Sustituido 19%
- Reciclado 10%
- Dispuesto 30%
- Gestión inadecuada 12%
- Exportado 0%

1.1 Why is advancing in downstream solutions so important?

The **collection and separation** of plastic waste by 2040 can be expanded by an additional **46,000 tons (5%)**, avoiding its inadequate management in Panama.

It is anticipated that around **10% of the plastic in use will be recycled by 2040.**

This will be reflected in the annual production of more than 92,000 tons of recycled plastic.



1.1 Why is advancing in downstream solutions so important?

The goals that will be worked on within the framework of the Colombian Plastics Pact for 2030 are:*



100%



unnecessary and problematic plastics eliminated

50%



of plastic containers, packaging and wrapping is recycled

100%



of plastic packages are reusable, recyclable or compostable

30%



of recycled material reincorporated into new packaging



**PACTO
POR LOS
PLÁSTICOS
COLOMBIA**

Coordinated by:



Strategic line	Project / initiative
Development of new business models	Ecodesign guide for circular containers and packaging / Validation and adaptation of Golden Design Rules in Colombia
Communication, education and civic culture regarding the circularity of plastics	(*) Raise awareness among interest groups about the use of labels on containers and packaging
Influence on public policy	Regulatory project for health and safety regulation in reuse (identification of criteria and creation of repository)
Strengthening the post-consumer plastics value chain	Long-term costs study along the plastics recycling chain
Influence on public policy	Guidelines for the construction of an information platform for the plastic value chain in Colombia
Communication, education and civic culture regarding the circularity of plastics	(*) Design a training plan on the circular economy of plastics for the media (ABC of the circular economy)
Influence on public policy	Technical document on the current state of the value chain of compostable plastics in the country

1.1 What are downstream solutions? Main concepts

Recycling:

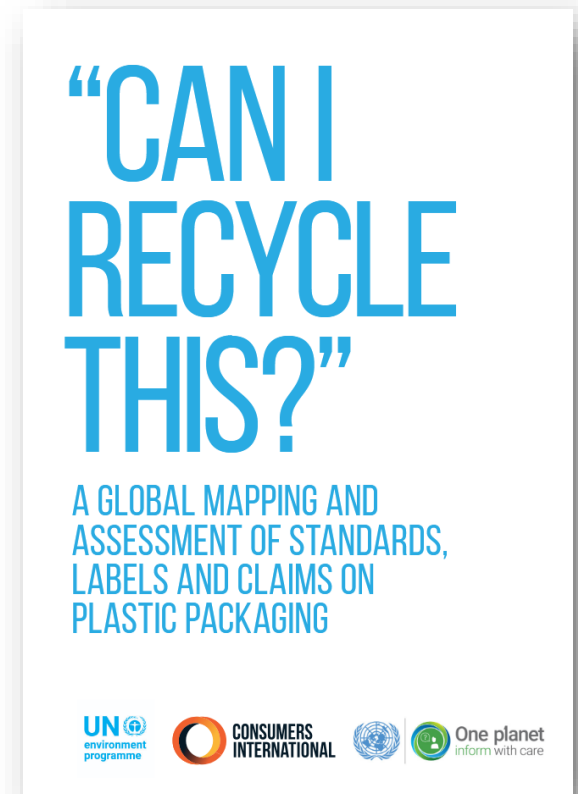
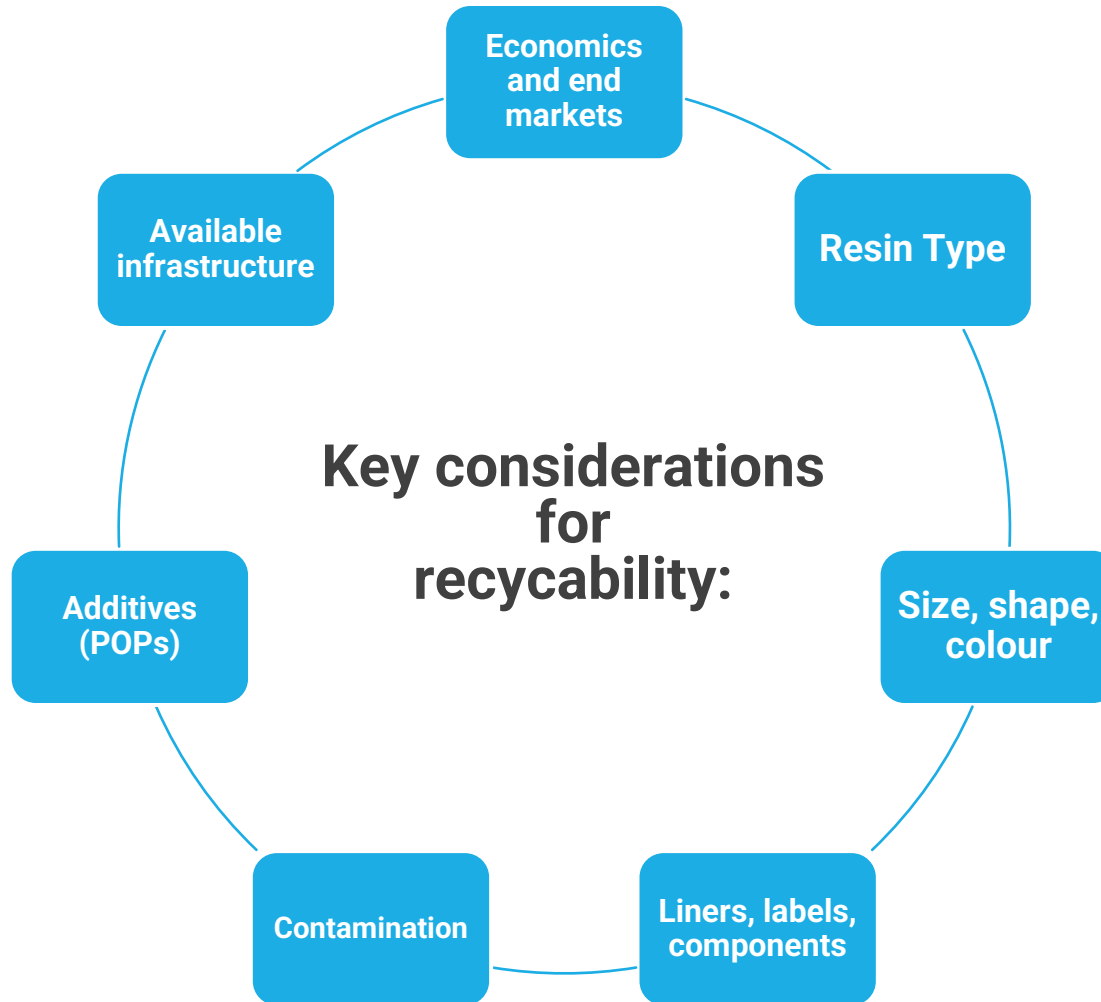
- ▶ **Recycle** refers to the relevant operations which **prevent waste disposal**, and allows **material to re-enter the loop**.
- ▶ Recycling operations usually involves the **reprocessing of waste** into products, materials or substances, though not necessarily for the original purpose.
- ▶ Recycling does not cover operations that only recover energy from waste (such as incineration of municipal waste).
- ▶ Recycling is a valuable source of material. However, it **requires collection systems, technology and infrastructures**. Materials can be recycled through different techniques and technologies by removing impurities and improving material quality, such as manual work, mechanical work, chemical and metallurgical process.

1.1 What are downstream solutions? Main concepts

Recycability:

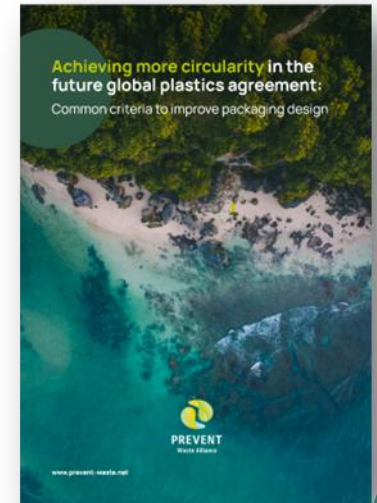
“A packaging or packaging component is recyclable if its **successful post-consumer collection, sorting, and recycling is proven to work in practice and at scale.**” (EMF 2018)

1.1 What are downstream solutions? Main concepts



1.1 What are downstream solutions? Main concepts

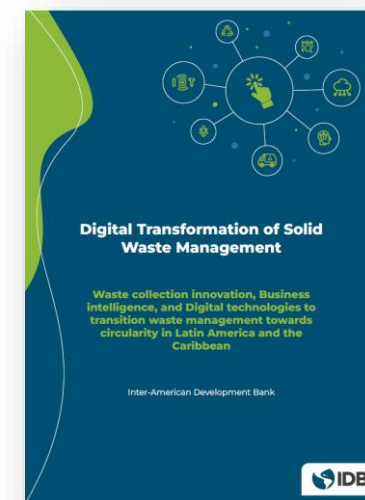
- ▶ **Mechanical recycling** in its various forms (e.g. for PE and PP film) is an established process and, in specific areas, suitable for food-grade applications (e.g. PET bottles).
- ▶ The process requires (rather) clean, ideally mono-type input materials or various subsequent processing steps.
- ▶ Most established large-scale recycling processes for packaging (regardless of material) and other products (if collected) are mechanical.



1.2 What are downstream innovation trends?

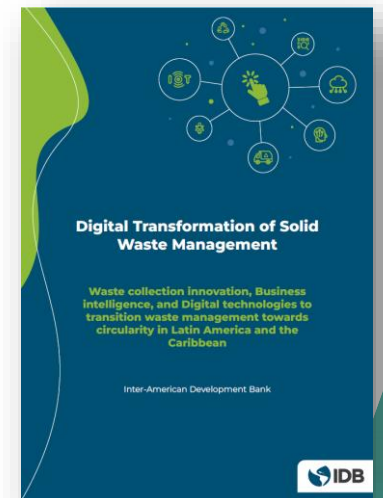
Use of smart waste technologies (SWT) in the waste management chain

	Digital Technology	Examples
	Communication Technologies	Web pages, mobile applications, social networks, etc.
	Internet of Things (IoT)	Sensors for intelligent containers, weight measurement systems, temperature sensors, geo-referencing of equipment and machinery, QR codes, NFC tags, GPS, RFID, etc.
	Data analytics	Data analysis for the recycling industry (trend detection, model calibration, control in energy recovery plants, etc.).
	Cloud computing	Container management, real-time operations management, collection route planning, collection vehicle lifespan, etc.
	Artificial Intelligence	Image recognition, forecasts of waste generation patterns, optimization of waste collection routes, predictions of bin level status/ biogas generation/ leachate formation, autonomous vehicles, identification of illegal dumps, among others.
	Robotics	Robots with the ability to identify and sort waste, robots that operate collection trucks, mechanical sweepers that operate autonomously.



1.2 What are downstream innovation trends?

Use of smart waste technologies (SWT) in the waste management chain



1.2 What are downstream innovation trends?

Generation and separation at source



Apps with information e.g., collection routes, location of containers, etc.



Apps to connect with (informal) recycling sector



Communication technologies



Email reminders, social media, and “oops tags,” “push messages,” to educate residents about separation at source and recycling



1.2 What are downstream innovation trends?

Temporary Storage
and Collection



Matching and Tracking
Apps



KOLEKT

Smart containers with
RFID or OQ codes to
monitor waste levels



Internet of Things (IoT)

Business Intelligence



Identify volume and type of waste
disposed in containers, and trigger an
“alarm” when materials other than the
ones approved are disposed of

Optimizing collection routes



AI

1.2 What are downstream innovation trends?

Recovery / Recycling

Robotics equipped with AI
software in „clean“ MRF

Robotics



Localized waste processing

 ReForm
Plastic

Optical sorting systems

AI



Improve and automate sorting
processes by identifying different
types of plastics

1.2 What are downstream innovation trends?

Additional resources:

UNEP – **Global Waste Management Outlook 2024**

<https://www.unep.org/resources/global-waste-management-outlook-2024>

HUB – **Waste and Circular Economy**

HUB – Residuos Sólidos y Economía Circular

<https://hubresiduoscirculares.org/recursos/publicaciones>

IDB - **Digital Transformation of Solid Waste Management** (2024)

<https://publications.iadb.org/en/digital-transformation-solid-waste-management-waste-collection-innovation-business-intelligence-and>

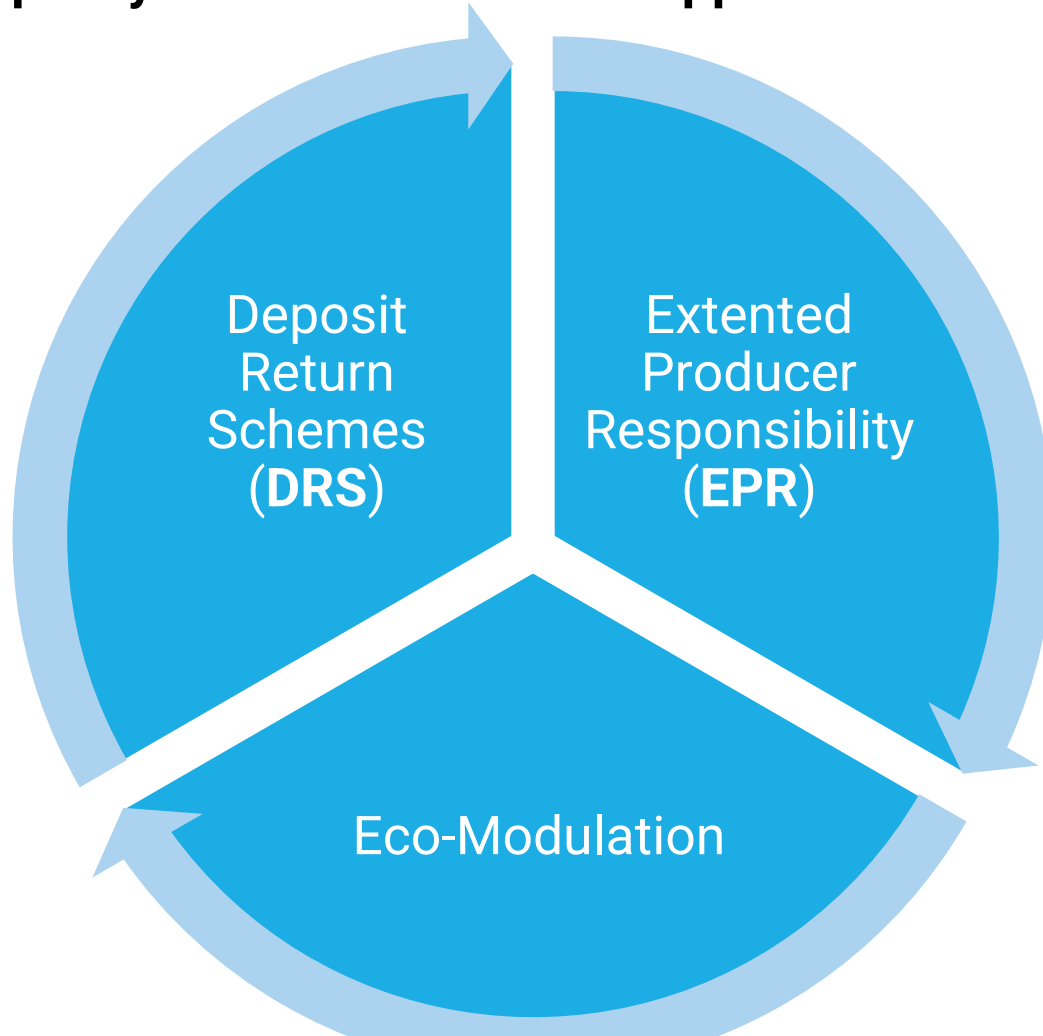
BID - Transformación digital de la gestión de residuos sólidos (2024)

<https://publications.iadb.org/es/transformacion-digital-de-la-gestion-de-residuos-solidos>

Polyproblem – **The Circularity Code** (2023): https://polyproblem.org/wp-content/uploads/Polyproblem-%E2%80%93-Circularity-Code_EN.pdf

1.2 What are downstream innovation trends? Policy instruments and waste management

Some policy instruments which support collection and recycling:



Further information:

DRS (SDDR):

- <https://www.reloopplatform.org/global-deposit-book-2024/>

EPR (REP):

- <https://www.unep.org/ietc/what-we-do/extended-producer-responsibility>
- <https://prevent-waste.net/epr-toolbox/>
- <https://gap-epr.prevent-waste.net/>

ECO-Modulation:

- https://ecoembesempresas.com/app/uploads/2024/06/Ecoembes_Ecomodulation-guide-2025-1.pdf

1.2 What are downstream innovation trends? EPR and Producer Responsibility Organizations (PRO)

- ▶ **Extended Producer Responsibility** is a concept where producers (including manufacturers, importers, distributors and retailers etc.) of products bear a significant degree of responsibility for the environmental impacts of their products throughout the product life-cycle:
 - upstream impacts inherent in the selection of materials for the products,
 - impacts from manufacturers' production process itself, and
 - downstream impacts from the use and disposal of the products.

- ▶ EPR has two principal environmental goals:
 - To provide incentives for manufacturers to design resource-efficient and low-impact products ("**eco-design**")
 - To ensure **effective end-of-life collection**, the **environmentally sound treatment** of collected products and improved **rates of reuse and recycling**

1.2 What are downstream innovation trends? EPR and Producer Responsibility Organizations

- ▶ The application of EPR very often involves a requirement for the producers to establish systems for the collection (and recycling) of their waste with a view to achieving certain targets (i.e. a “take-back mandate”).
- ▶ For reasons of practicality, they usually join a **Producer Responsibility Organisation** (PRO) in order to comply with this requirement.
- ▶ A PRO is a **collective body** operating nationally which takes charge of meeting the legislative requirements of producers on their behalf and against a financial contribution on their part. As a result, once a producer has joined a PRO (typically through the payment of a fee corresponding to the type/quantity and characteristics of the products they put on the market), the PRO becomes the entity which is legally responsible and thus needs to ensure that the legislative targets and requirements are fulfilled.
- ▶ Actions that PROs can implement include:
 - motivating citizens to source **separate waste** more and better through innovative communication actions, such as competitions among territories;
 - **close cooperation** (financial, technical and/or logistic) with public authorities at regional/local level;
 - cooperation with social economy actors for the collection and reuse of products;
 - incentivizing producers to **design** more sustainable products (e.g. via “fee modulation”)

1.2 What are downstream innovation trends? EPR and Eco-modulation

What is Eco-modulation?

Eco-modulation is the incentivization of product design and material choices that favor reduced environmental impact through a fee schedule in an EPR program.



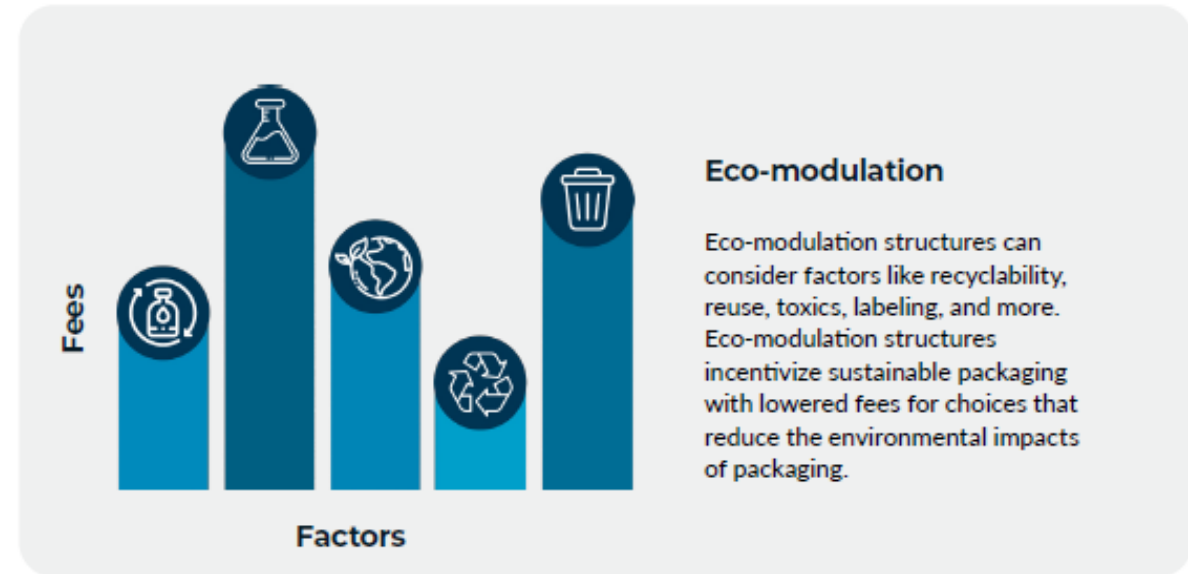
The **objective** of eco-modulation is to incentivize producers to generate less waste and reduce environmental impacts. Eco-modulation uses economic incentives within policy to push environmental outcomes.

End-of Life Characteristics:

Recycability, chemicals of concerns, recycling rates

Life Cycle Characteristics:

Recycled content, reusable or refillable, lightweighting



Examples of EPR / PRO practices

PROs		Country	Link
ECOCE		Mexico	https://www.ecoce.mx/
RESIMPE		Chile	https://www.resimple.cl/
RETORNA		Colombia	https://gruporetorna.com/
NUVI		RD	https://nuvi.do/

2. GOOD PRACTICES ON COLLECTION AND RECYCLING SOLUTIONS

Disclaimer: UNEP does not endorse any private sector companies mentioned in meetings/events organized or presentations/reports/documents produced under the GEF LAC cities project.



All examples, good practices and business cases provided in this presentation are illustrative and have no commercial purpose or affiliation with UNEP.

2.1 Overview on COLLECTION practices

No	Name of the practice	Country	Link	Focus
1	RECIVECI	Ecuador	https://www.reciveci.com/en	Digitalization of collection
2	BLAU Corp	Mexico	https://www.blaucorp.com/	Digitalization
3	RECIRCULAPP	El Salvador	https://reciculapp.com/	B2B
4	RECYBOT	Dominican Republic		Reverse Vending Machine
5	GreenMining	Brazil	https://greenmining.com.br/en/home-en/	Glass, PET
6	Circular Ports	DR, HN, MX	https://itmgroup.mx/puertos-circulares/	Cruiseship Ports

COLLECTION Practice 1 – ReciVeci

Profile

Name of the Practice	RECIVECI
Location (City/Country)	Ecuador and Peru
Sector involved	Grassroot recyclers, Companies
Partners involved	National Network of Recyclers of Ecuador (RENAREC)
More information (website)	www.reciveci.com/

WHAT



ReciVeci is a social enterprise that promotes the separation, recycling, and returnability of solid waste in homes and businesses across Ecuador through social and technological innovation.

HOW

The **ReciApp** creates **connections between citizens and grassroots recyclers**, recovering recyclable material and delivering it directly to them.

- 1. Build connections** – The app links citizens with grassroots recyclers, dignifying their work and creating a real impact in the community.
- 2. Recycling without intermediaries** - Deliver recyclable materials directly to grassroots recyclers or drop them off at recycling stations.
- 3. Rewards for recycling** - Earn points for every delivery you make and redeem them for excellent prizes at our partner ReciBusinesses.
- 4. Support for families** - Contribute to the work of women and families of grassroots recyclers, strengthening inclusion and dignifying their labor.

ReciVeci offers additional services:

ReciEventos: Organizing interactive events to collect recyclable and returnable waste from your company or organization. They also can participate with their recyclable waste management services at events, measuring the environmental impact achieved.

ReciCorp: Implementing sustainable recycling system tailored to the needs of offices, businesses, or the hospitality and catering sectors. They help reduce or eliminate CO2 footprint and meet corporate ESG and environmental goals while collaborating with grassroots recyclers.

ReciPlus: Implementing recovery and returnability campaigns for recyclable materials specifically designed for fast-moving consumer goods companies and providing guidance and support during the transition to an inclusive circular economy.

COLLECTION Practice 1 – ReciVeci

Results / Impacts

- Over 1,000 tons of recyclable material recovered in 2024
- In 2024, 81 grassroots recyclers earned income by working directly on projects with ReciVeci.
- Over 1,700 registered grassroots recyclers on ReciApp
- Almost 6,000 direct deliveries of recyclable materials through ReciApp
- Around 30 companies have designed and implemented systems for the collection of recyclable material with grassroots recyclers

Success Factors / Lessons Learnt

- Adjusting services to specific demands
- Technological innovation, development of mobile applications and traceability platforms.
- Inclusive work with grassroots recyclers.
- Diversified and sustainable business model.
- Innovation means constant adaptation.
- Maintaining a committed team is essential.
- Diversifying services strengthens sustainability.
- Creating social, environmental, and economic impact is not easy – but it's possible.

Illustration



COLLECTION Practice 2 – BLAU

Profile

Name of the Practice	BLAU Corp
Location (City/Country)	Mexico
	Waste Management Digitalization
Sector involved	Municipalities, Companies
Partners involved	Investors (500 LATAM), GIZ GmbH
More information (website)	https://www.blaucorp.com/

WHAT



AI solution for waste management to make the entire waste management chain traceable and more efficient.

HOW

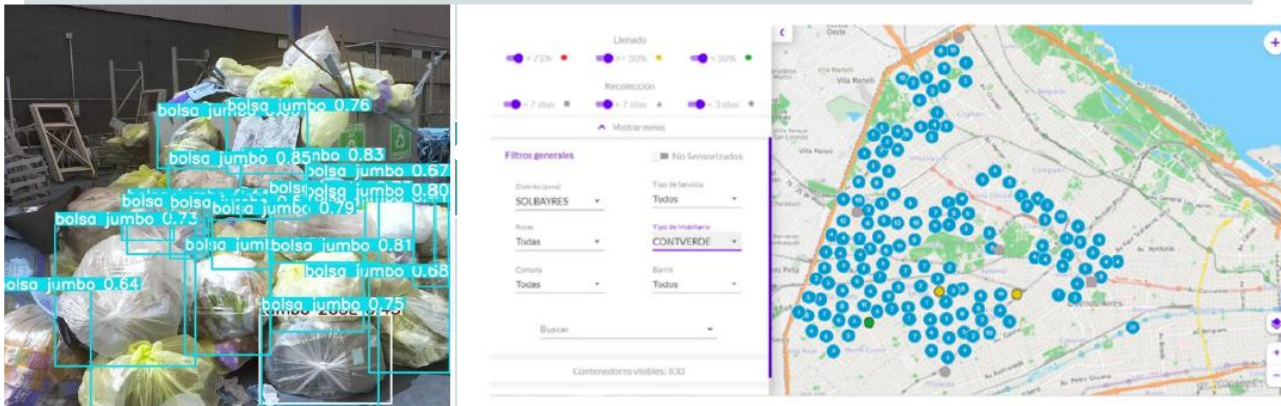
BLAUCorp provides governments and waste management companies with technology that helps them make better decisions and generates accurate information to manage, plan, evaluate and monitor waste management at all stages.

BLAU Corp **digitizes waste management** companies and governments to make them smarter and more profitable, delivering digital tickets, **create smart routes**, receive online payments and track trucks.

COLLECTION Practice 2 – BLAU

Results / Impacts

- Blau Corp, AI for waste management (500 LatAm B17) has been recognized with the prestigious BID FEMSA 2024 Award.
- Cost savings
- Collection points with sensors in Guadalajara
- Smart routing for waste management
- Photo and signature capture as evidence



Illustration



COLLECTION Practice 3 – RECIRCULAPP

Profile	
Name of the Practice	RECIRCULAPP
Location (City/Country)	El Salvador
	Waste Management Digitalization
Sector involved	B2B Recycling Solution
Partners involved	Recyclers
More information (website)	https://reciculapp.com/

WHAT



B2B model that through its app connects recyclers and companies to commercialize these wastes online.
"We want to be the UBER of recyclable waste collection in the region"

HOW

The app enables businesses to sell their recyclable waste online at a base price to organized collectors who then sell it at a better price without further intermediation to collection centers and recycling plants.

Main services:

Waste Management – Providing a platform for companies to find waste management solutions.

Collector Network – Connecting companies with a organized red of collectors facilitating recycling processes and increasing recycling rates

Environmental Reports – Generating detailed reports on environmental impacts

COLLECTION Practice 3 – RECIRULAPP

Results / Impacts

- Recycled material: 702 tons (2024)
- Supported by Latitud R
- Digitalizing waste management processes, optimizing logistic operations, traceability of waste

Success Factors / Lessons Learnt

- Match-making / win-win platform:
 - Companies receive income for their waste,
 - Collectors and recyclers increase volumes
- Simple and practical steps for waste management processes, optimizing logistic operations, traceability of waste

Illustration



Collection Practice 4 – RECYBOT

Profile	
Name of the Practice	RECYBOT
Location (City/Country)	Santo Domingo (República Dominicana)
Sector involved	
Partners involved	GreenLove (Waste Management), Malls, Metro
More information (website)	https://www.instagram.com/recybotrd/

WHAT

Reverse Vending Machine



HOW

Recybot is the first **automatic collection machine** manufactured in the Dominican Republic that allows users to separate consumer waste in high traffic locations while receiving rewards for separated materials.

It serves as a **communication platform** for sponsoring companies, as well as creating brand value by positioning themselves as environmentally and socially responsible.

Collection Practice 4 – RECYBOT

Results / Impacts

- 7 RECYBOTs in Metro Stations
- Presence in malls

Success Factors / Lessons Learnt

- Location: high fluctuation
- First phase: Onsite presence with personnel explaining functioning of the machines
- Maintenance: Daily check
- Financing: Sponsorships / Brand positioning

Illustration



Collection Practice 5 – GreenMining – Factory Price Station

Profile	
Name of the Practice	GreenMining
Location (City/Country)	Brazil
Sector involved	Informal Waste Workers
Partners involved	UpLink
More information (website)	• https://greenmining.com.br/en/home-en/ • https://www.youtube.com/watch?v=fs0qkvgEFEE • www.oneplanetnetwork.org/sites/default/files/2025-06/D4CE%20Business%20Models%20Technical%20Paper_FINAL.pdf

WHAT

Reverse Logistics
Technology and
Collection HUBS



HOW

Factory Price Station aims to address two issues in Brazil's recycling chain:

1. the low recycling rate (less than 3%) and
2. the poor working of waste pickers.

Green Mining pays the real value for recyclable materials instead of the 10% to 20% that waste pickers typically received.

The industry funds the operation, and anyone who brings recyclable waste to a unit receives the same payment they would get if they delivered the material directly to a recycling plant (no intermediaries).

Collection Practice 5 – GreenMining

Results / Impacts

- Green Mining became pioneers in intelligent reverse logistics by developing technology to recover post-consumer packaging with a traceability system with blockchain that ensures all collected material is sent for recycling.
- The proprietary system is tailored to each client's needs, providing efficient recovery of recyclables with respect for the key actors in the chain.
- 30 collectors and 4 staff
- By May 2025, over 5,100 tons of materials were collected and sent for recycling.
- The project paid R\$ 4,900,000 to approximately 2,510 people, with over 80% being waste workers and cart drivers.
- Operations are expanding, with nine active units and new units planned for other Brazilian cities.

Success Factors / Lessons Learnt

- Combination of social and environmental elements
- Industry fulfills role in the shared responsibility outlined in the National Solid Waste Policy in Brazil
- New pilot: „**Recycle & Earn Station**“: A printer that generates a QR code linked to the ID of the customer registered in the Green Mining App. The person attaches the QR code to the bag of recyclable waste, deposits it at the station and earns discounts in a supermarket.

Illustration

uplink

Green Mining uses data to map out waste-generation hotspots in cities

uplink

And installs its **Factory Price Station (FPS)** receiving centres in those areas

WORLD
ECONOMIC
FORUM



COLLECTION Practice 6 – Circular Ports

Profile	
Name of the Practice	Circular Ports (ITM Group)
Location (City/Country)	Dominican Republic, Honduras, Mexico
Sector involved	Cruiseship Ports / Terminals
Partners involved	Fundación ITM GENERA, Local community, local foundations, GIZ GmbH
More information (website)	https://itmgroup.mx/en/circular-ports/ https://online.flippingbook.com/view/749010593/2/

WHAT

Circular Ports is the Genera ITM Foundation's main sustainability programme to eliminate and replace single-use plastics in cruise ship ports in which ITM Group operates.



HOW

Main measures:

- Separating solid waste and implement alternatives for its correct final disposal
- Placing water dispensers to avoid plastic bottles
- Delivering reusable bottles and cutlery to ITM employees
- Avoid the use of straws and Styrofoam
- Dining room are plastic free
- Promoting solid waste management for collaborators, tenants and community

COLLECTION Practice 6 – Circular Ports

Results / Impacts

- Initiative implemented in 4 cruiseship ports: Costa Maya (MX), Taino Bay (DR), Port Roatan (HN), Port Cabo Rojo (DR)
- Waste separation stations at port terminals installed

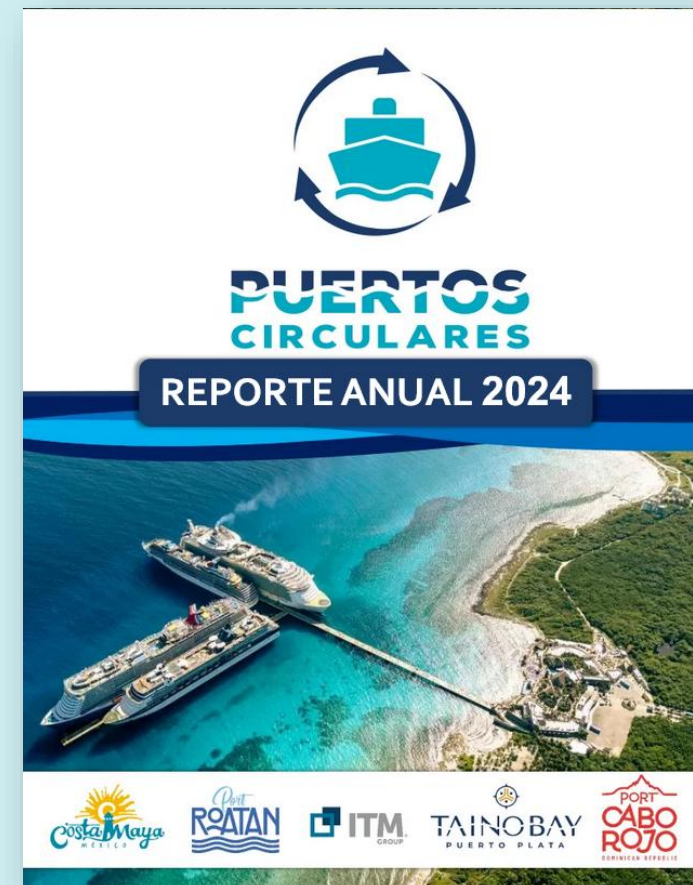
Results in 2024:

- 90,4 tons of recyclable waste collected
- 88% of plastic materials substituted in operation
- 15,5 tons of PET bottles substituted (630.800 bottles)
- 593 staff members trained

Success Factors / Lessons Learnt

- Raising awareness first with own staff and Integrating employees in the initiatives (bringing own food containers)
- Integrate all departments (tours, maintenance, public areas, financing, spa, etc.)
- Designated personal for waste to assure correct collection and separation
- Separation of organic waste and recyclables (PET bottles, cans, carton)
- Monitoring and reporting collected and recycled waste
- Create local partnerships with recycling companies, foundations

Illustration



COLLECTION Practice – More inspiration for digitalizing waste collection



Short Description

Use of digital systems and data analysis to improve the efficiency of solid waste management operations:

In Argentina, some municipalities such as Buenos Aires, San Miguel, and Rosario, already have SWT in the form of **geolocation and volume sensing in waste containers, digitalization of work plans, design and implementation of intelligent collection routes, telemetry for equipment maintenance, and mobile apps for operations certification**, among others.

The digitalization of the information generated allows the integration of systems, the centralization of information for online control, and the generation of dashboards with KPIs for better decision-making.

In addition, indicators have been incorporated that contribute to environmental care, such as measuring carbon footprint, strengthening environmental awareness to achieve differentiated collection, and processing these materials for sale, promoting the circular economy.

Sources:

- <https://publications.iadb.org/en/digital-transformation-solid-waste-management-waste-collection-innovation-business-intelligence-and>
- <https://www.urbetrack.com/en/>

Illustration



COLLECTION Practice – More inspiration for digitalizing waste collection

Short Description

Latinamerica has experiences in the digitalization of the waste management sector, such is the case of the **Empresa Pública de Aseo del Municipio de Rumiñahui** (EPAR), in Ecuador, which since 2021, with less than USD 20,000 of investment in digital technologies, has managed to digitalize its operation, diversify its services and increase its efficiency.

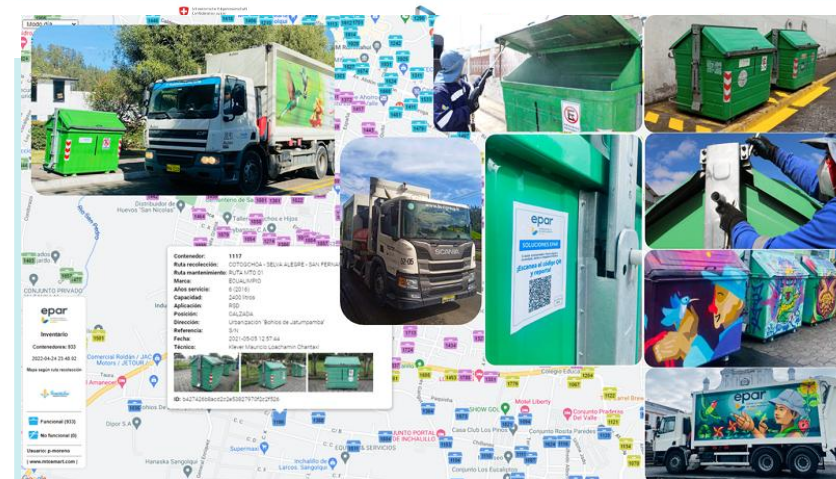
The digitalization of the operation is visualized in **digital platforms with key indicators** for decision-making; for example, the incorporation of QR codes for citizens to **report the status of containers**, which has optimized the maintenance service and has increased efficiency per working day by 62%, from an average of 22 to 36 containers maintained per day.

EPAR, in a short time, has managed to change its organizational culture in favor of technology, has used digitalization tools in line with the reality of its environment and has had a high political will for innovation in the entity.

Sources:

- <https://publications.iadb.org/en/digital-transformation-solid-waste-management-waste-collection-innovation-business-intelligence-and>
- <https://blogs.iadb.org/agua/es/transicion-en-la-digitalizacion-del-sector-de-residuos-solidos-en-latinoamerica-y-el-caribe/>

Illustration



COLLECTION Practice – More inspiration for digitalizing waste collection

Short Description

Reciclapp is a Chilean mobile application and platform that **connects individuals and businesses with waste collectors** for recycling purposes.

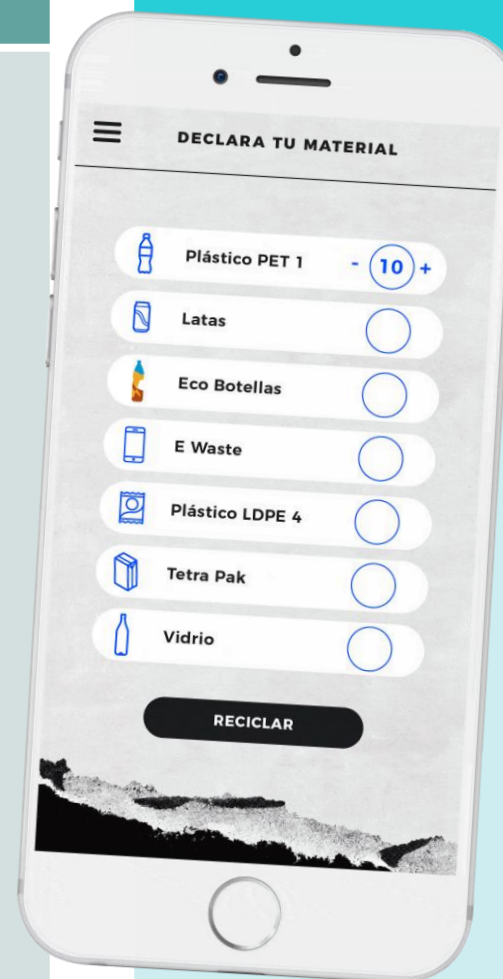
It aims to facilitate and optimize the recycling process by connecting people who want to recycle with those who collect and recycle materials.

The app allows users to **schedule collections**, track the process, and even earn rewards for recycling.

They are also offering services for recycling at events, in offices and communities/residential.

Source: <https://somosreciclapp.com/>

Illustration



RECICLAPP 

- 1.** Recicla consciente
Limpia, seca, aplasta y separa todos tus residuos reciclables. Luego cuéntalos y decláralos en la app.
- 2.** Agenda tu retiro
Elige una fecha y bloque de horario para que un reciclador pase por tu casa a recoger tus residuos.
- 3.** Espera a tu reciclador
Preocúpate de estar atento a la fecha y hora que elegiste, y ten todos tus residuos listos para entregarlos.
- 4.** Repite y gana
Suma puntos Recikarma y cámbalos por productos hechos de residuos reciclados.

COLLECTION Practices – More inspiration from “Cooperate to Recycle”

Short Description

BVRio is supporting Coopama to implement the project ‘**Cooperate to Recycle**’ by collecting recyclable materials in the metropolitan region of Rio de Janeiro. The project aims to increase the cooperative’s production capacity, positively impact its members with increased income and new training programmes. BVRio is providing strategic input to help the cooperative increase productivity through innovation in waste management and operations, including training courses and acquiring equipment to increase productivity and safety for the cooperative members.

The **KOLEKT app** was used to register and monitor all collected materials for this project. KOLEKT uses images and GPS in order to verify the inputs of the cooperative.

KOLEKT creates traceability of waste along the whole supply chain and then maps all stakeholders involved in the process. It records data in a format that allows for more efficient monitoring, validation, verification and certification of waste recovery and recycling against recognized standards. Materials are registered in the app by weight, type and condition, and the date and place of collection is recorded along with photographs, so that actors in the whole collection and recycling chain can see the materials on offer, or requested, near them.

Sources:

- <https://bvr.io/project-update-cooperate-to-recycle/>
- <https://kolekt.com/>

Illustration



COLLECTION Practice – More inspiration for separation at source

Short Description

Three-stream waste separation in Bogotá:

How to recycle according to the colour of the bag?

White: for recyclables, such as paper, cardboard, plastic, metal and glass.

Black: for non-recyclables, such as sanitary waste, nappies, napkins, contaminated packaging, etc.

Green: for organics, such as food waste, shells, seeds, bones, etc.

Source: <https://bogota.gov.co/mi-ciudad/habitat/reciclaje-en-bogota-asi-puedes-separar-segun-el-color-de-las-bolsas>

Illustration



COLLECTION Practices – More inspiration for separation at source



Gobierno de
Canelones



Short Description

Separation at source programme in Canelones (Uruguay): Canelones is the department that recycles the most at the national level. The municipality of Canelones delivered, until April 2025, more than 153,000 recycling containers and 75,000 home composting bins, more than 300 Ecopoints. In the year 2024, Canelones captured 8,182 tones of recyclable waste.

1. **Canelones Limpio:** To achieve high standards of clean public spaces
2. **Canelones Recycles:** To deepen circular economy strategies through reduction actions, and recycling / valorization of the different waste fractions (Segregation in households and Eco-Points)
3. **Proactive Canelones:** Promote citizen participation and shared responsibility in the management through the generation of modern regulations, accompanied by communication strategies, environmental education and control.
4. **Modern Canelones:** To keep up to date with the knowledge and new technologies applied to waste management, being in tune with the main experiences worldwide.
5. **Prospective Canelones:** Plan with a view to the future, rethinking and adapting management, based on monitoring and evaluation of indicators.

Sources:

- <https://www.imcanelones.gub.uy/noticias/canelones-impulsa-cambio-cultural-hacia-circularidad-nueva-guia-sobre-reciclaje>
- <https://www.youtube.com/watch?v=lib-WL4B-5Y&t=4s>

Illustration

Economía Circular en los Hogares de Canelones Guía para Reducir, Reciclar y Compostar en casa



COLLECTION Practices – More inspiration from “PROJECT GIRO”

Short Description

What:

A new waste management service which aims to recover **source-segregated recyclable and organic waste** from residents and businesses.

The Delterra, Project GIRO supports a three-stream kerbside collection system of recyclable, compostable and mixed waste.

Where:

Olavarría, Argentina.

Key features:

Kerbside collection in three streams, efficient sorting centre to facilitate recycling and composting, local government ownership.

Sources:

- <https://www.endplasticwaste.org/what-we-do/projects/delterra-giro-argentina>
- <https://delterra.org/knowledgehub/olavarria-a-lighthouse-example-for-scaling-municipal-waste-transformation/>
- <https://delterra.org/latest/how-to-get-a-city-recycling-delterra-shares-an-argentinian-success-story/>

Illustration



2.1 Overview on COLLECTION practices

Fishery Sector

COLLECTION Practices – More inspiration from Sánchez in the DR

Short Description

FROM FISHERS TO OCEAN GUARDIANS

The Ocean Guardians Program has been operating since 2020 in the Bajo Yuna Mangroves National Park, on the northeast coast of the Dominican Republic. The region is home to a wide range of biodiversity, including mangrove forests, endemic island mammal and endangered bird species. Many areas of the park, are extremely polluted.

Through Parley's program, a team of **thirteen local fishers** based in Sánchez have been mobilized to **intercept plastic waste** found in the mangrove forests and along the coastline in the park. These Ocean Guardians know the local waters best, and are now working to protect nature. As part of the program, some now deliver talks to schools and community organizations, participate in fairs and lead local entrepreneurship events in secondary schools in the area.

To date, the program has intercepted over 100,000 kg of plastic waste.

Key take-aways:

- Importance of identifying local leaders and change agents
- "Door-to-door" awareness raising campaigns and integration of the local Community in designing solutions
- Direct communication through whatsapp group for questions and answers
- Environmental education at local schools
- Accessible and convenient collection routes connecting homes and business

<https://parley.tv/dominican-republic>

Illustration



COLLECTION Practice – More inspiration from “Fishing for Litter”

Short Description

Since 2021 BVRio has been working with **small artisan fishing communities** in Brazil and Mozambique to develop a programme delivering both environmental and social impact.

Fishers no longer able to make a good living from fishing alone, have been funded a few hours each week to use their boats and local knowledge to **remove waste from the ocean and mangroves**.

The waste is collected, weighed and recorded via the **KOLEKT waste management app**, and then passed on to local recycling cooperatives, or re-destined to responsible landfills.

Waste is collected twice a week by teams of fishers in traditional boats, or in organised beach clean-ups. Collected waste is then registered and monitored through the KOLEKT app. The app uses images and GPS in order to verify the inputs of both the seller, the fishers, and the buyers (waste cooperatives). The app's web-based dashboard is used to track and administer all transactions.

<https://www.bvrrio.org/fishingforlitter/>

Illustration



COLLECTION and Recycling Practice – More inspiration from “Social Recycling Shipyard”

Short Description

Objective

Preventing and minimizing marine litter in Guanabara Bay, Rio de Janeiro, and neighboring communities, in particular from land-based activities by targeting the problem at the source and sustaining local economies through the establishment of a sustainable waste management system in the target region.

The project also targets the transformation of plastic waste into long-lasting products for surrounding communities (e.g., boats), ensuring that the material will not end up in water bodies.

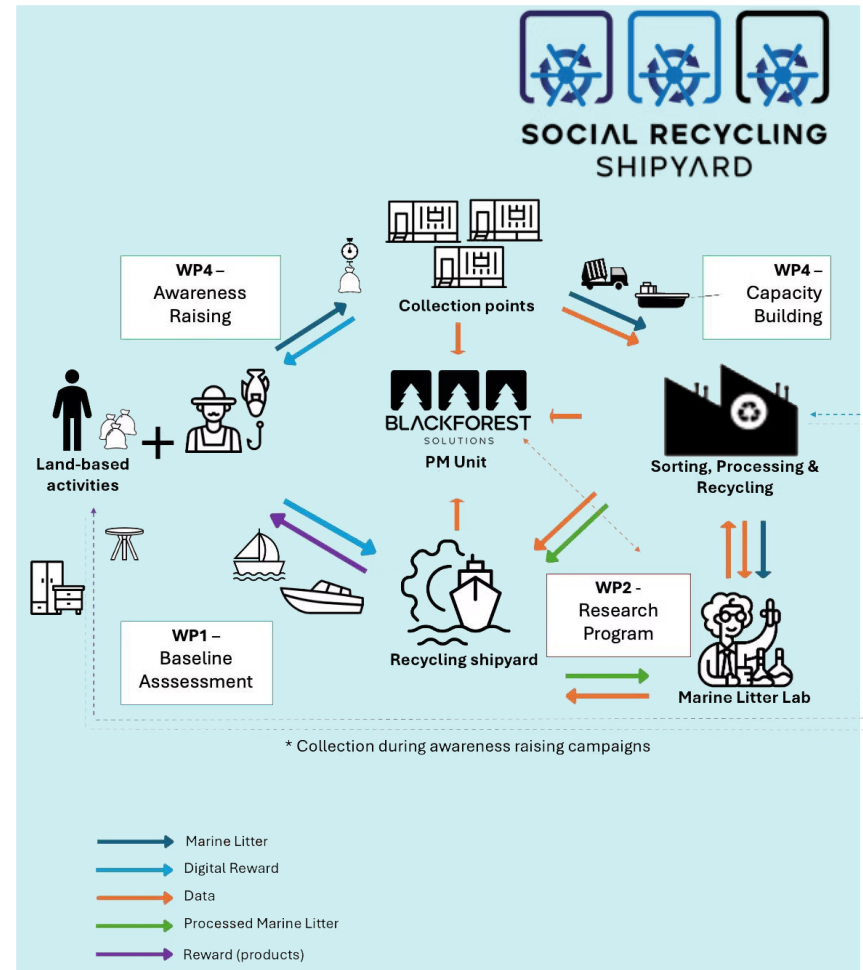
- Develop a “Marine Litter Recipe Book” as a step-by-step guide on processing marine plastic litter
- Build up entrepreneurial skills for circular businesses – focusing on plastic waste and marine litter – in the community, especially with disadvantaged groups
- Develop and set up a “Social Recycling Shipyard” to produce fisher boats and other items made from plastic litter
- Expand waste collection and set up community collection points for plastic waste, providing ecopoints as incentives for community members

Concept

The social recycling hub aims on provide financial sustainability for project exploring different business models, and testing the usage of no or low-value plastics, ghost fishing nets among others into long lasting products, assuring the sups are removed from the environment.

<https://www.socialrecyclinghub.org/>

Illustration



COLLECTION Practice – More inspiration for the management of fishing gear

Short Description

The **Fishing gear recycling technologies and practices** document is a report on the technical aspects and current examples of fishing gear recycling as an option for end-of-life fishing gear waste management and pollution control.

The report also discusses fishing gear recycling options in the context of circular economy and Extended Producer Responsibility (**EPR**) principles.

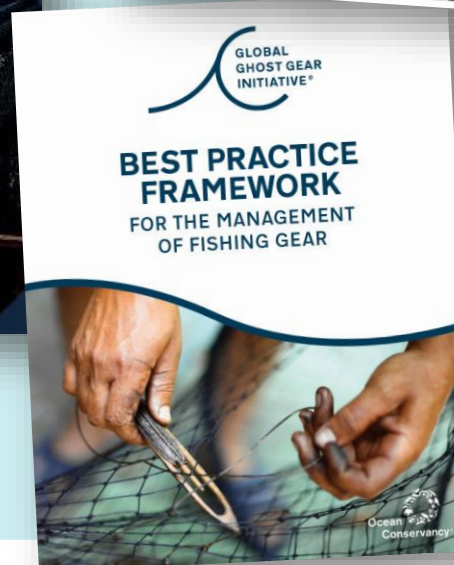
- <https://openknowledge.fao.org/items/3818db5d-128d-467c-b916-fc7294698709>
- <https://www.ghostgear.org/resources>

WWF developed a blueprint for how EPR for fishing gear could be implemented across the EU and beyond.

The document aims at supporting regional and national authorities and stakeholders in understanding how to develop effective and inclusive systems of EPR for fishing gear, and includes recommendations for a more harmonized regional approach to better address the issue of ghost gear and cross-border fishing gear waste disposal.

- https://wwfeu.awsassets.panda.org/downloads/wwf_extended-producer-responsibility-for-fishing-gear-2024_lores.pdf

Illustration



2.2 Overview on RECYCLING practices

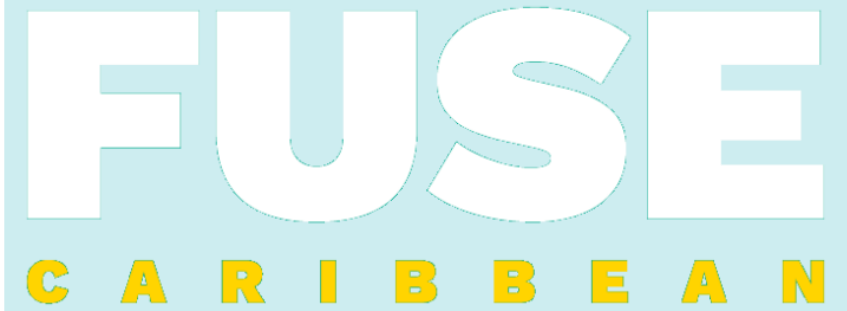
No	Name of the practice	Country	Link	Focus
1	FUSE Caribbean	Curacao	https://fuse-caribbean.site/	Building materials and furniture
2	ARB	Colombia	https://asociacionrecicladoresbogota.org/	Plastic Wood
3	Atando Cabos	Chile	https://atandocabos.cl/en/	Fishing Industry
4	RECYCLE OECS	Caribbean	https://oecs.int/en/recycling-in-the-eastern-caribbean-recycle-oecs	Tourism

RECYCLING Practice 1 – FUSE Caribbean

Profile	
Name of the Practice	FUSE Caribbean
Location (City/Country)	Willemstad, Curaçao
Sector involved	DIY Stores (Building materials, home improvement)
Partners involved	Waste management companies, recycling facilities, retailers for building materials and home improvement
More information (website)	https://fuse-caribbean.site/ https://www.kooymanbv.com/curacao_en/ekoduro

WHAT

Technology and business model to transform plastic waste into building material.



HOW

The mobile and modular **FUSE Kitchens** are build into shipping containers. This allows to build a **modular factory** as close as possible to where the plastic waste is.

- 1. Set up a waste management network:** FUSE offers a formula introducing a business model tailored for local entrepreneurs. This not only fosters economic growth but also creates employment opportunities.
- 2. Facilitate waste transformation on site:** The FUSE Kitchen is the catalyst of the recycling formula. FUSE provides and helps to install the mobile factory and train the local workforce to ensure safety, efficiency and quality.
- 3. Co-create products that meet local demand:** FUSE works with designers, engineers and the local community to develop smart products that meet local demand. Smart because they can be used in different ways, are climate adaptive and are long lasting.

RECYCLING Practice 1 – FUSE Caribbean

Results / Impacts

4 FUSE Kitchens located in:

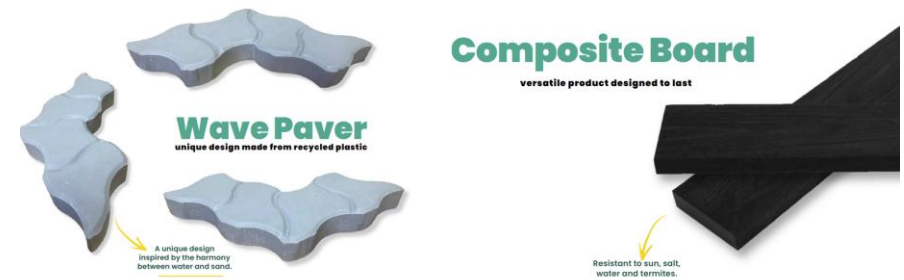
1. **Curacao** (46 tons of plastic waste transformed into durable composite boards called Ekoduro. The boards are sold at the local Kooyman retail stores.)
2. **Bonaire** (Producing Ekoduro composite boards for the local Kooyman retail store)
3. **Barbados** (The FUSE Kitchen at B's Recycling will be used to make sustainable and weatherproof composite pavers)
4. **Surinam** (first FUSE Kitchen in South America)

Job Creation: 18 new jobs

Success Factors / Lessons Learnt

- Setting-up the value chain: partners for collecting (LDPE/HDPE/PP), sorting, reducing into raw material, transforming and selling (retailer)
- Ensure a critical mass of plastic waste collection
- Co-create products that meet local demand.
- FUSE is supporting the local franchisees with value chain management.

Illustration



RECYCLING Practice 2 – ARB



Profile

Name of the Practice	ARB (Cooperative Recyclers Association)
Location (City/Country)	Bogotá, Colombia
Sector involved	Waste pickers
Partners involved	AVINA, Latitud R
More information (website)	https://asociacionrecicladoresbogota.org/

WHAT

Recyclers Association



HOW

ARB brings together more than 2,000 waste pickers in 19 local organisations, who work collecting, transporting and processing or recovering raw materials for the recycling Industry.

Main activities:

Collection of recyclables, Community sale of materials, Community storage of materials, Organizing collective events, Training and capacity building. Sorting Centers.

RECYCLING Practice 2 – ARB

Results / Impacts

- Through legal advocacy strategy, the Colombian Constitutional Court recognizes the rights of recyclers. It has brought formal recognition for the waste pickers as public service providers
- Its one of the oldest waste picker organization worldwide and one of the strongest in Latin America
- Recyclers in Bogota received economic compensation for the recyclable materials they collected.
- They are recognized as public service providers and being integrated into the solid waste management system of the city
- 80% recyclables collected by waste pickers
- Collection monitoring

Success Factors / Lessons Learnt

- Political incidence
- Volume (segregation at source)
- Special projects: Plastic Wood processing of multiple types of post-consumer plastic packages which do not have a market in Colombia

Illustration



Latitud 
Reciclaje inclusivo hacia una economía circular



CATALOGO DE PRODUCTOS
MADERA PLÁSTICA



RECYCLING Practice 3 – Atando Cabos

Profile	
Name of the Practice	Atando Cabos
Location (City/Country)	Chile
Sector involved	Fishery
Partners involved	Aquafil, Sernapesca
More information (website)	• https://atandocabos.cl/en/ • https://www.ideassonline.org/public/pdf/AtandoCabosChile-ENG.pdf

WHAT

Clean tech company which Recycles waste of the Fishing industry in Chile



HOW

Atando Cabos company was established with the challenge of reducing the environmental impact generated of aquaculture plastic waste by recovering and recycling tons of marine debris from the southern coast of Chile.

Main activities:

- Collection, sorting of plastic waste from beaches, islands and fjords.
- Transforming it into recycled raw materials such as polypropylene, high-density polyethylene, polyamide, and expanded polyethylene.
- Creating materials into high-quality, durable plastic items such as pallets, boxes, insulating panels useful for the fishing industries and communities

RECYCLING Practice 3 – Atando Cabos

Results / Impacts

- Winner of the IDB and MIT Solve competition “Rethink Plastics” in 2020
- Development of T.R.S.T., a blockchain technology that allows to trace the positive impact throughout the cycle: record material, linking final product to its origins.
- Substitution of pallets made by virgin plastics imported from Asia
- Detergent containers made from buoys
- Transforming fish nets into raw materials for new products
- Agreement between Atando Cabos and Aquafil Chile to open a operating plant to collect and recycle ropes and nets used in aquaculture, artisanal and industrial fishing, with an initial processing capacity of 2,500 tons per year.

Success Factors / Lessons Learnt

- Improving recycling methods to obtain high-quality, competitively priced material from discarded ropes, buoys, and nets in Patagonia.
- Collaborative production chain in the region, involving local industries, administrations and services, fishermen, and small businesses
- Business alliances for new product development

Illustration



Recycling Practice 4 – Recycle OECS

Profile	
Name of the Practice	Recycle OECS
Location (City/Country)	Dominica, Grenada, Saint Lucia
Sector involved	Tourism
Partners involved	EU, Agence Française de Développement (AFD) Grenada Hotel and Tourism Association, Schools
More information (website)	https://oeqs.int/en/recycling-in-the-eastern-caribbean-recycle-oeqs https://www.youtube.com/watch?v=8Busw4GD5Y&list=PLbsabZnsuU62ykyFtDCpzY74-prMSBxkz&index=1

WHAT

Recycle OECS is a project to research and design a sustainable waste separation, collection, and recycling model.



HOW

The Recycle OECS Project, a collaboration between the OECS Commission, the French Development Agency (AFD) and the European Union objective is to develop and implement sustainable recycling initiatives.

The project is divided into two components: (i) the development of the OECS model and (ii) the implementation of two demonstration projects of plastic waste collection and treatment, and project management, visibility, institutional coordination, and audit.

As its core the project designed sustainable recycling models for plastic waste, adapting solutions to the local context.

Recycling Practice 4 – Recycle OECS

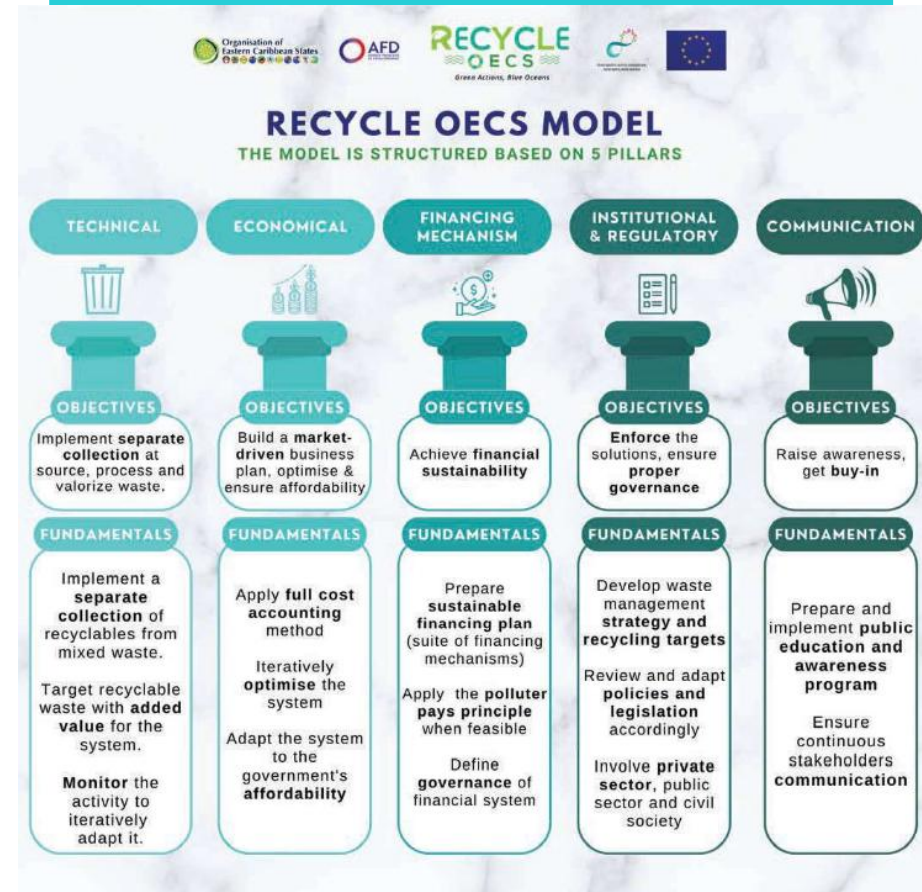
Results / Impacts

- Dominica's Zero Waste Schools Programme (more than 3000 students, 57 youth clubs, participated, over 250.000 bottles collected, 49 partners from private sector)
- Grenada's integrated approach to sustainable tourism and waste management (development of Material Recovery Facility (MRF), 90% of Grenada Hotel and Tourism Association members committed to waste separation, investment in community recycling initiatives, 3 major hotels implementing collection systems)

Success Factors / Lessons Learnt

- Use of a solid model which is structured based on 5 pillars: (1) Technical, (2) Economical, (3) Financing, (4) Institutional & Regulatory and (5) Communication
- Need to adapt solutions to local context
- Small islands stated can leverage their tourism industry to drive environmental solutions
- New forms of awareness raising (Videos)
- Infrastructures investment drives success
- Importance of youth involvement and community engagement
- Explore diversified funding source
- Setting recycling targets

Illustration



Recycling Practices – Bottle-to-Bottle (PET)

ENKA

Colombia

<https://www.enka.com.co/>



Planta Renacer

DR

<https://www.plantarenacer.com/>



INVEMA

Honduras

<https://invemacorp.com/>



PetStar

Mexico

<https://www.petstar.mx/>



RECYCLING – More inspiration!

More **inspiration** for recycling practices!

EcoTrofeos

Design and sale of trophies, awards and prizes made from recycled materials
(Dominican Republic)

<https://www.ecotrofeos.com.do/>



PLASTICLUP

Furniture and decor made from recycled plastic fibre
(Chile)

<https://www.plasticlup.com>



RECYCLING – More inspiration!

More **inspiration** for recycling practices!

The New Raw

Transforming plastic waste into furniture through robotic 3D printing
(NL)

<https://thenewraw.org/>

The New Raw



ReverseLab

Exploring the recyclability of plastics with little or no commercial value and producing gifts and/or personalized products on demand
(Brazil)

<https://www.reverselab.org/en>



2. Good Practices

Join at menti.com | Use code **9313 6721**

 Mentimeter

Which good practices inspire you most to support circular transition and downstream innovation in your city?

Inteligencia Artificial aplicada a esquemas de recolección

La experiencia de Colombia en REP

Ecomodulación en práctica del reciclaje y diseño

conocer sobre que analizan para garantizar la seguridad libre de tóxicos en la circularidad

Las facilidades digitales para el reciclaje

Micro-level recycling projects that have the potential to scale!

Costos de estas iniciativas, ideal como marco de implementación

AI and EPR related approaches

Las iniciativas sociales que buscan soluciones que pueden ser replicables

3. FIRST IDEAS AND RECOMMENDATIONS



3. Challenges and actions

Some challenges:

- **Technical barriers** (non-recyclable packaging/products, mixed waste, infrastructure investments, largest cost component is collection)
- **Market and financial barriers** (volatile markets for recyclable materials, financing mechanisms, „polluters are not paying“)
- **Lack of recognition** of the urgency of the waste challenge
- **Lack of inclusion** (informal waste workers)
- **Lack of enabling environment** (Legislation, enforcement)
- **Data** on pollution and health risks is lacking

Some possible actions:

- **Data and digitalization** to strengthen the waste management value chain
- Promote **separation at source** and increase collection rates
- **Data** to enable clear vision and consistent leadership
- Zero waste and circular economy models
- Adopting **behavioural** science
- Ensuring **inclusion** and representation
- Building **local capacities**, leadership and eco-system on waste management / circular economy
- (Considering also organic waste – waste segregation at source)

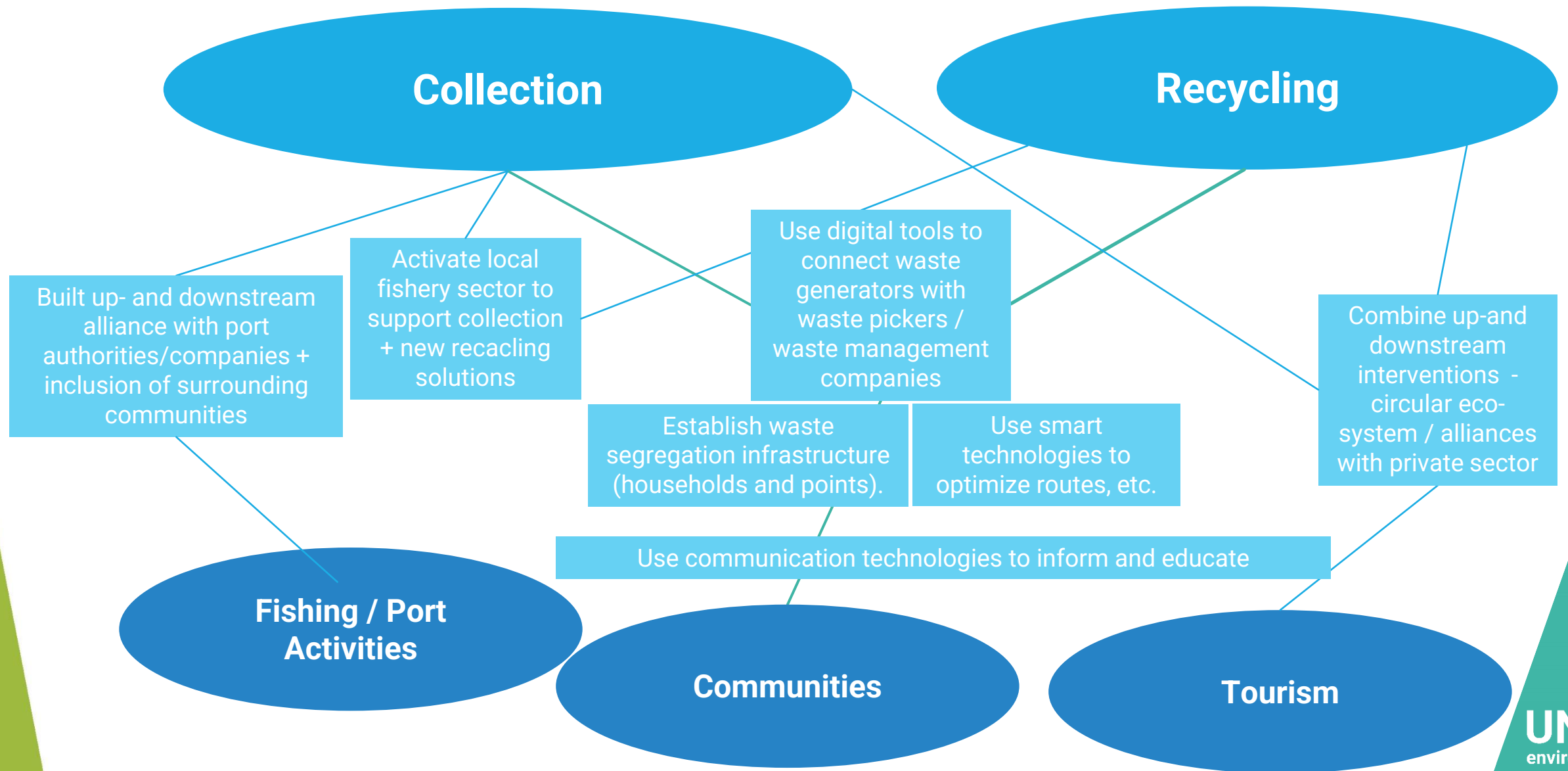
General remarks and recommendations

- ▶ Lead by example in the community by identifying opportunities to drive resource efficiency; raise awareness through **positive and targeted messaging**; and make it easy for residents and local businesses to reduce waste and participate in **waste segregation** programmes.
- ▶ Recognize the specific experience and expertise of both **women and the informal sector** and to advance waste reduction and involve them in waste management service design.
- ▶ Encourage residents to **reduce waste** and where possible manage waste in the home, for example through home composting, to reduce the cost of municipal waste management.
- ▶ Involve the **local community** and provide meaningful opportunity for feedback on waste reduction and waste management strategies; ensure **systems are co-designed** with service users to promote ownership and accountability and to embed **behaviour change**.
- ▶ Cooperate between municipalities to **share and replicate good practice** and achieve economies of scale in service delivery.

3. Final remarks and recommendations

- Select **specific intervention area** (value chain, sector/community, tourism hotspots) considering existing systems
- Use pilot project to **test new, innovative approaches** for collection and recycling (test for future scale-up, considering also future investment opportunities)
- Combine **digital tools with on-site interventions** and **include informal waste workers** to explore **new collection channels and increase collection rates** which could also stimulate future investments (for collection, sorting and recycling capacities)
- Digital tools can also support **data collection** (measurement and monitoring of project indicators)
- Understand local needs and motivations (**human-centered design**) and **co-design** with local partners
- **Engage communities** through education about the importance of **segregation-at-source**, and provide necessary resources/infrastructure (formalization/organization of informal waste workers)
- Built **partnerships** and involve the full value chain - stakeholder alignment is crucial and should be addressed early in a project to build support for establishing the operation.
- Assure **consistency** (regular pick-ups of segregated waste)

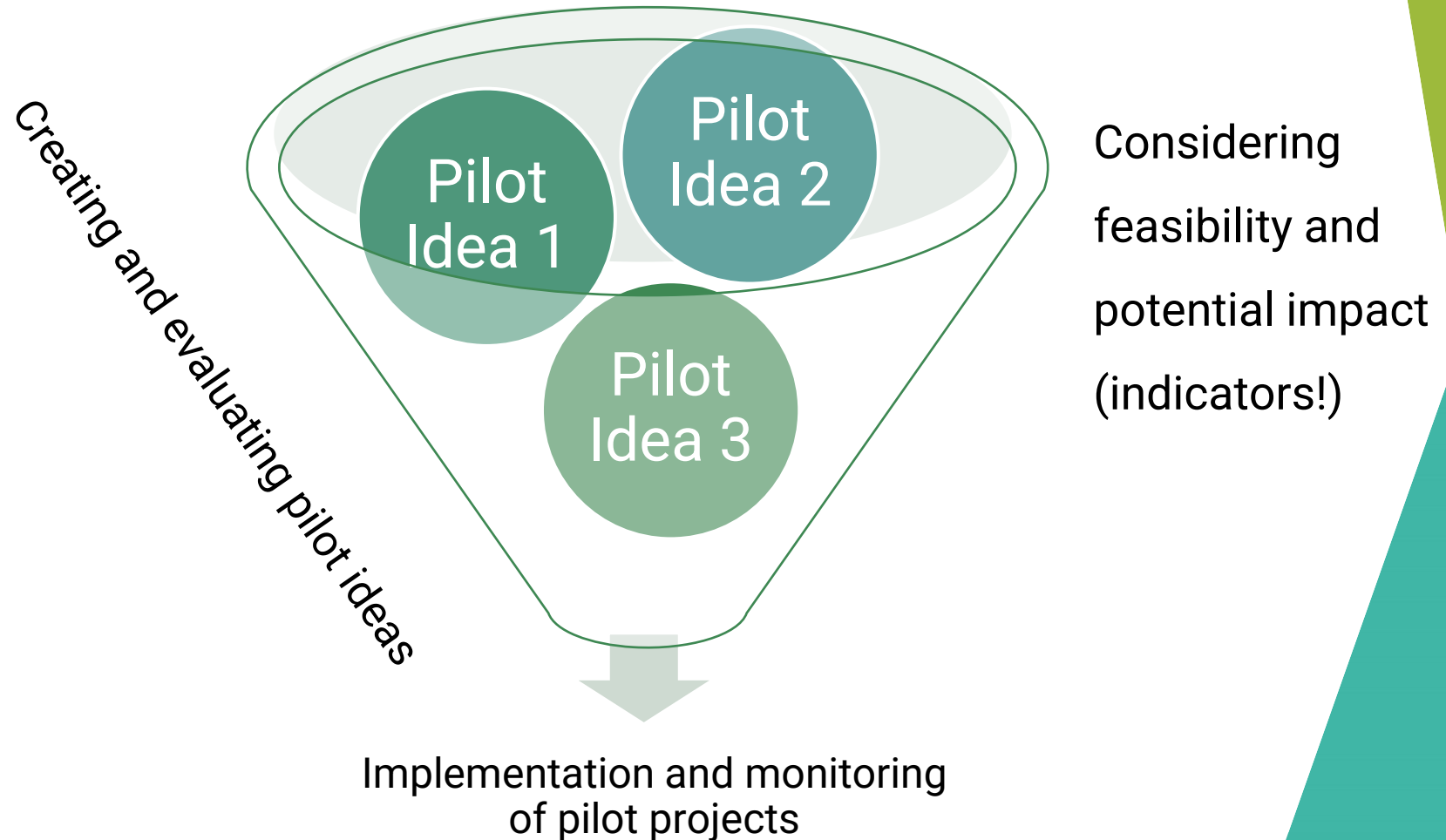
First ideas for further discussion...



Proposal

Supporting the identification and evaluation of potential downstream pilots in the partner cities

- Identify existing initiatives, alliances, road maps, etc.
- Identify possible sectors and partners with demand, opportunities and interest



4. NEXT STEPS

4



Next steps

1. Share this **presentation** *(July 2025)*
2. Peter could give a more detailed presentation on specific concepts or practices and will organize **bilateral meetings** to define next steps regarding pilot selection / design process *(July – August 2025)*
3. City/country implementing partners integrate insights / learnings / new ideas into their workplans and **start design and implementation phase** under **component 2** – *Pilot test of up- and downstream solutions in 6 cities (August 2025)*