Unlocking Financing for Organic Waste Management

Insights from the Financial Readiness Framework

15 January 2024

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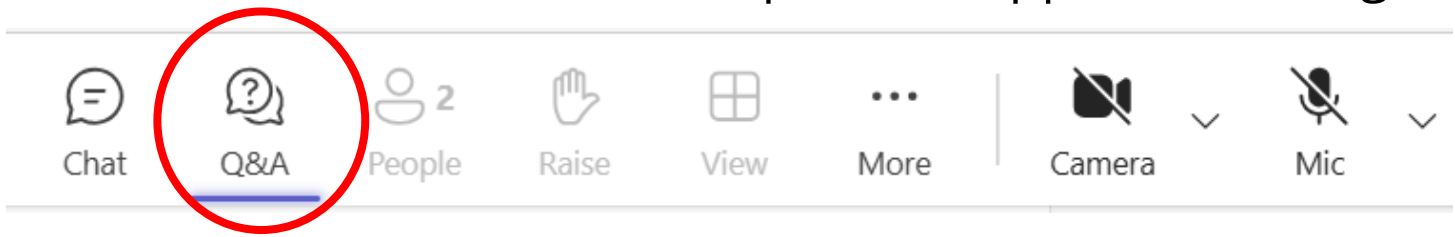
Global Methane Initiative

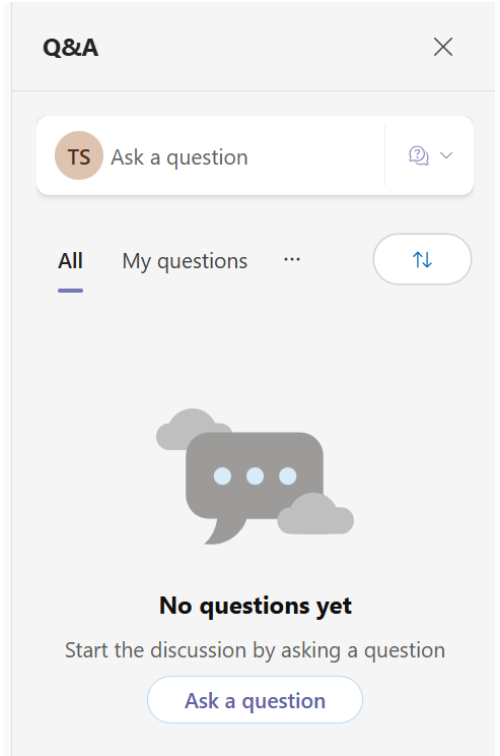
Webinar Instructions

- This webinar is being recorded
- Participants are muted
- Question & Answer (Q&A) session
  - Submit questions during the webinar using panel
- Exit poll and feedback form
- Final materials will be posted to the GMI website: www.globalmethane.org

Q&A

- Questions will be moderated at the end of the webinar
- To ask a question during the webinar:
  - Press the Q&A button for the panel to appear in the right-hand side of the screen





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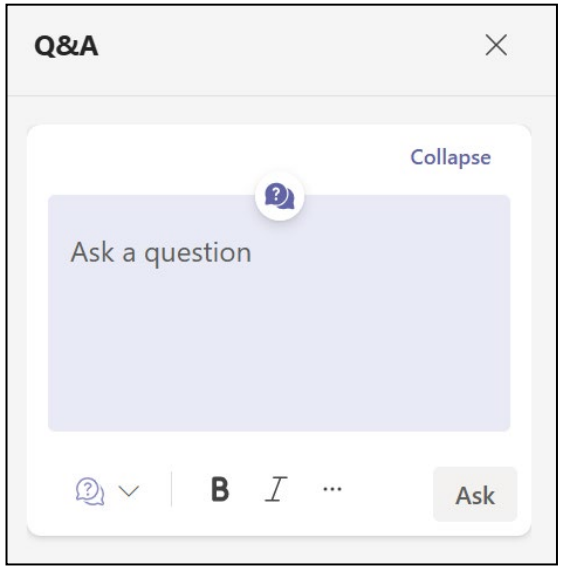
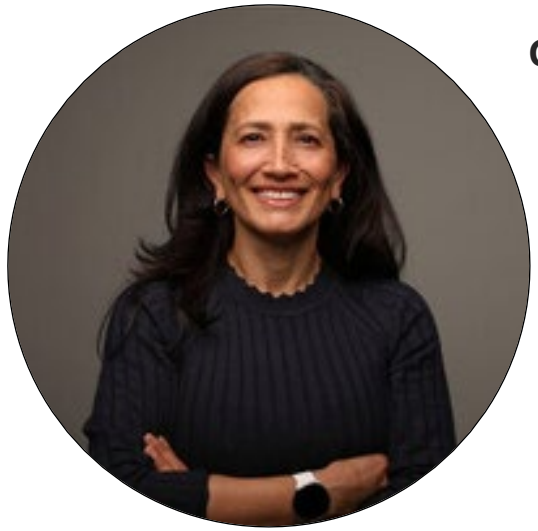


Panel

Klara Zimmerman
Physical Scientist
U.S. Environmental Protection Agency

Jiao Tang
Chief Operating Officer
Catalytic Finance Foundation

Cristina Clopatofsky
Programme Coordinator
Catalytic Finance Foundation



Magda Correal
Senior Specialist
Inter-American Development Bank

Gerardo Canales
Director
ImplementaSur

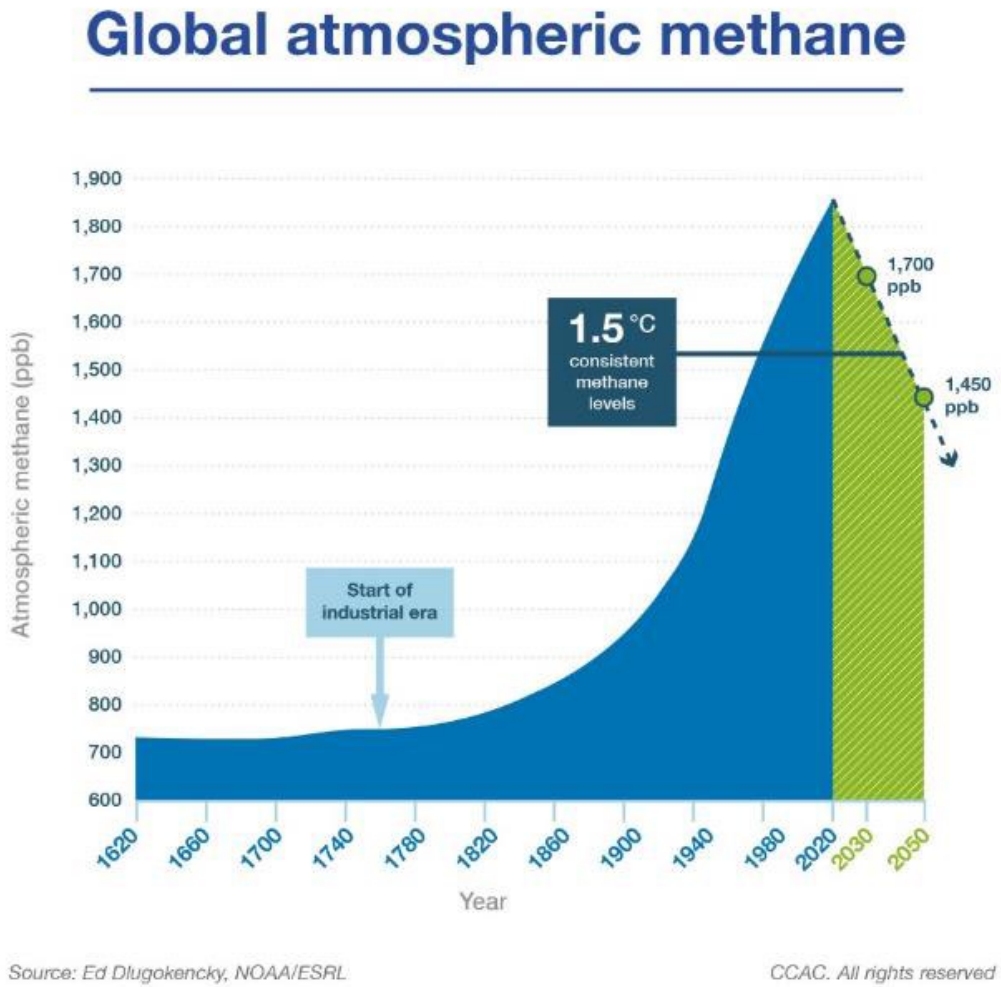
Agenda

- Introduction to GMI and the Financial Readiness Framework
  - *Klara Zimmerman, Program Manager, U.S. EPA (Moderator)*
- Financing Organic Waste Management: Challenges and Opportunities
  - *Jiao Tang, Chief Operating Officer, Catalytic Finance Foundation*
  - *Cristina Clopatofsky, Programme Coordinator, Catalytic Finance Foundation*
- From Policy to Action for the Improvement of Organic Waste Management and Mitigation of Emissions. Case Study - Uruguay
  - *Magda Correal, Senior Specialist, Water and Sanitation Division, IDB*
- Case Studies from Recycle Organics Program
  - *Gerardo Canales, Director, ImplementaSur*
- Questions and Answers

Introduction to GMI and the Financial Readiness Framework

Why Methane?

- **Powerful greenhouse gas (GHG).** One ton of methane can trap 28-34 times more heat than one ton of carbon dioxide over a 100-year period
- **Precursor to tropospheric ozone**, an air pollutant and GHG
- **Short-lived climate pollutant** with an atmospheric lifetime of 12 years
- **Opportunity for fast climate action**
  - Cutting methane now delivers substantial, immediate climate benefits
  - Capturing and converting methane into clean energy can enhance energy security



Source: UNEP and Climate and Clean Air Coalition. Global Methane Assessment.

Global Methane Initiative (GMI)

- International public-private partnership focused on advancing:
  - Cost-effective, near-term methane abatement
  - Recovery and use of methane as a valuable energy source
- Provides in-kind technical support to deploy methane mitigation and methane-to-energy projects around the world
- Supports three key sectors:
  - **Biogas (municipal solid waste, agriculture, wastewater)**
  - Coal mines
  - Oil & gas
- Advances the Global Methane Pledge, an agreement to cut global methane emissions by at least 30 percent from 2020 levels by 2030

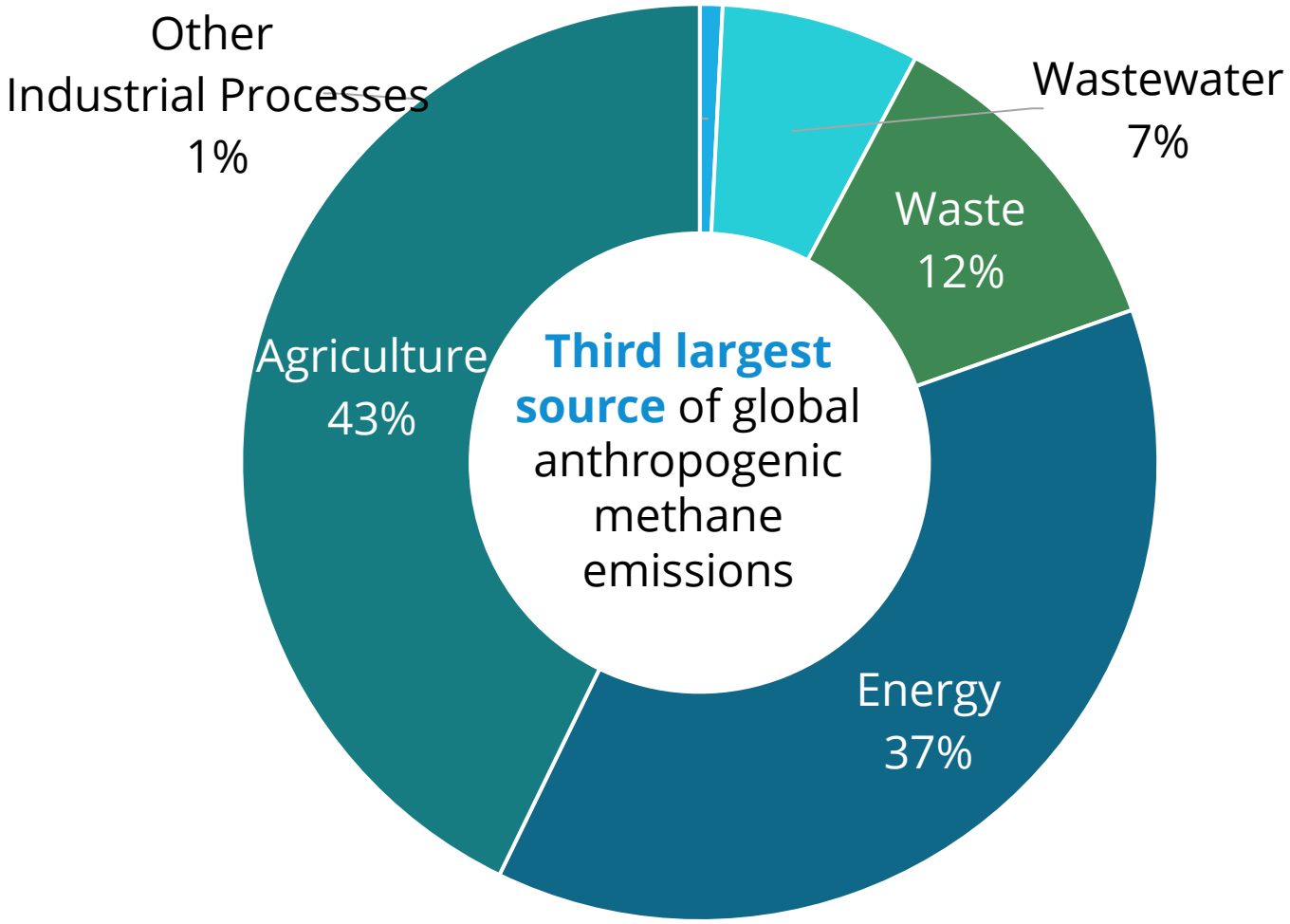
globalmethane.org

Global Methane Initiative

- 48 Partner Countries
- 1,000+ Project Network members
- Alliances with international organizations focused on methane recovery and use

GMI Partner Countries represent approximately 75% of methane emissions from human activities.

Why Focus on the Municipal Solid Waste (MSW) Sector?



Co-benefits of Waste Methane Mitigation

- ✓ Improved air and water quality
- ✓ Improved public health
- ✓ Increased worker safety
- ✓ Enhanced energy security
- ✓ Increased agricultural productivity
- ✓ Reduced odors

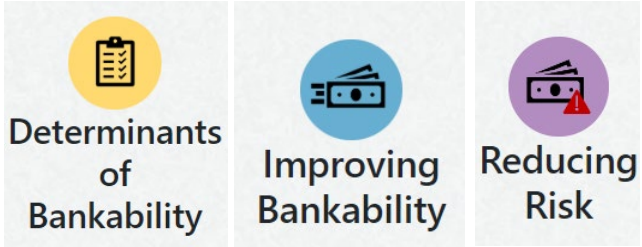
Source: U.S. EPA's Global Non-CO2 Emissions Database

GMI helps overcome barriers and challenges to biogas implementation

- Identifying and acting on opportunities for emissions reductions by identifying what is needed
- Fostering best practices and effective policies with the project network and beyond
- Developing and sharing technical resources and strategies
- Increasing capacity and skills to address methane
- Collaborating with key partners to amplify shared messages

GMI Financial Readiness Framework for Organic Waste Management

- **What:** The *Framework* provides high-level practical guidance to help stakeholders understand the process for:
  - financing organic waste management projects that reduce methane emissions,
  - mitigating potential investment risks, and
  - improving the bankability of projects.
- **Why:** One of the main obstacles for implementing organic waste management projects is securing financing for capital and operation costs.
- **Where:** Available at globalmethane.org/frf



GMI Financial Readiness Framework for Organic Waste Management (cont'd)

- **How:**
  - Organizes extensive research of existing resources and consultations with finance experts and implementers into a helpful system to orient key stakeholders.
  - Summarizes key steps for financing organic waste management infrastructure. Each step includes:
    - Best practice activities that stakeholders can consider,
    - General and sector-specific resource links that can provide additional guidance and support, and
    - Case study examples of policies and programs from around the world to help countries learn from others' experiences.
- **Audience**: National and subnational governments, investors, solid waste professionals, project developers

Summary of Steps in the Financial Readiness Framework

Framework Steps*	Goal	Resources Examples
1 Develop Project Plan	Define project scope, expected outcomes. and Incorporate bankable project concepts.	Solid Waste Management Toolkit
2 Assess Feasibility	Evaluate financial readiness of involved organizations. Determine project technical and financial feasibility.	Risk Analysis Checklist for Biogas Projects
3 Identify and Select Financing	Identify potential financing sources and instruments and select.	Handbook on Urban Infrastructure Finance
4 Mitigate Risks	Consider regulations, and financial and technical best practices to mitigate risks.	Financing Readiness Questionnaire for Municipal Solid Waste Sector
5 Secure Permits and Approvals	Identify necessary permits and approvals. Plan and submit documentation.	Landfill Gas Project Development Handbook
6 Seek Project Funding/ Finance	Determine project eligibility and develop a high-quality proposal.	Anaerobic Digester/Biogas System Operator Guidebook
7 Structure and Close Financing	Select financial instruments, close financing, and develop a plan for measurement, reporting, and verification (MRV) of results.	GMI's MRV Resource Center

*The Framework steps may occur concurrently or iteratively, and the numbers do not imply a rigid sequence.

GMI Tools and Resources to Support Methane Reductions from the Waste Sector

Tools

- Solid Waste Emissions Estimation Tool (SWEET)
- Anaerobic Digestion Screening Tool
- Organics Economics (OrganEcs)
- Landfill Gas Screening Tool

Resources

- Waste Characterization Handbook
- Policymaker's Framework for Addressing Methane Emissions
- Policy Maker's Handbook for MRV in the Biogas Sector
- Risk Analysis Checklist for Biogas Projects

globalmethane.org

Financing Organic Waste Management: Challenges and Opportunities

Catalytic

FINANCING ORGANIC WASTE MANAGEMENT: Challenges and Opportunities

Catalytic Finance Foundation

January 15, 2025

Catalytic Finance Foundation

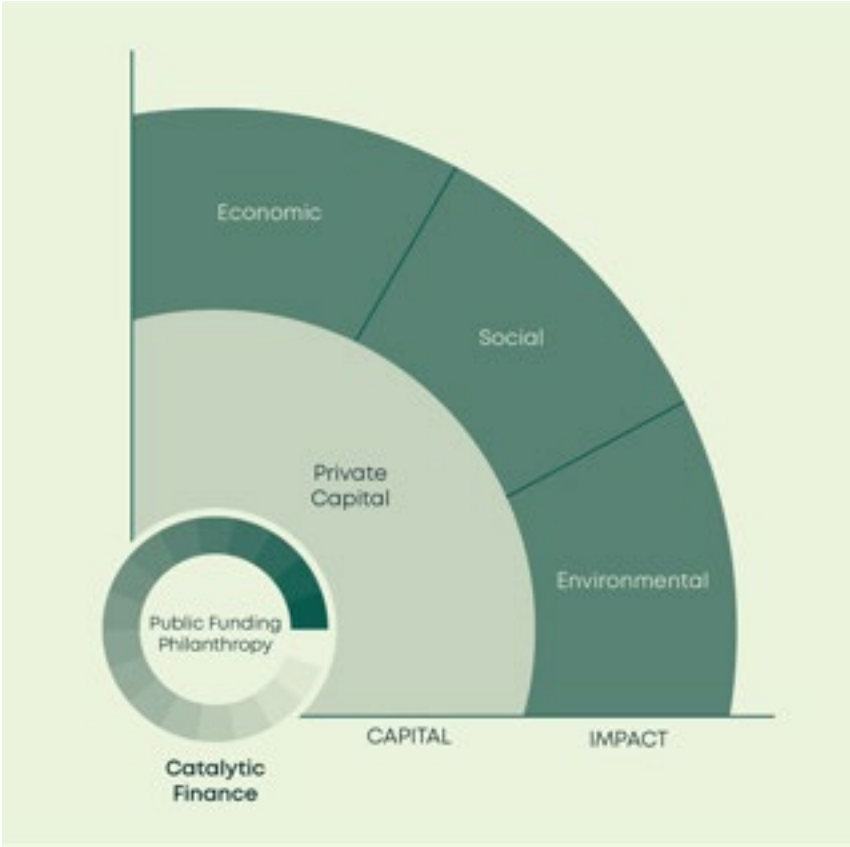
About US

Incubator of innovative financing solutions

Incubate catalytic financing mechanisms, such as blended-finance investment funds, leveraging concessional to attract commercial capital to finance projects that have been deemed too risky by commercial investors

Sustainable Infrastructure Advisor

Support the development and implementation of impactful projects by providing technical assistance and early-stage seed capital



01

Challenges and Opportunities viewed by Private equity Investors

What are organic wastes from municipal solid waste?

Kitchen waste

Food residual

Garden waste

Organic waste treatment processes

Anaerobic Digestion

Composting

Landfill Gas Capture

Emerging solutions:

Challenges

Material flow of the operation

Feedstock

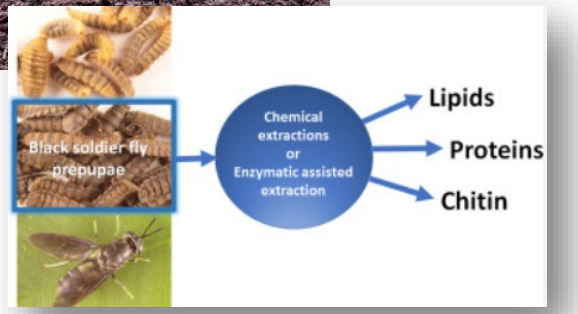
- Mixed waste
- Source-separated organic waste

Treatment process

- Anaerobic fermentation
- Composting
- Others: e.g. Black soldier flies

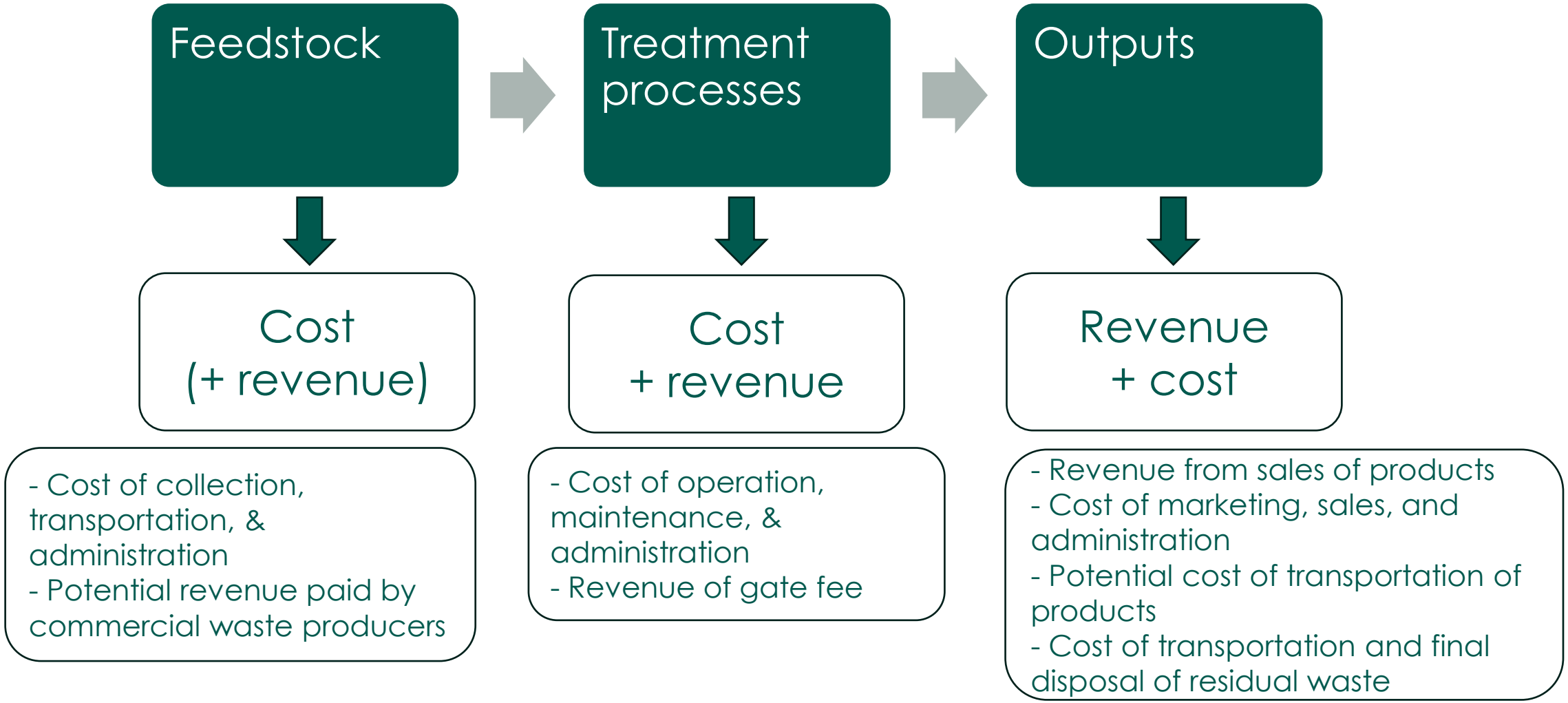
Outputs

- Biogas
- Bio-methane
- Compost
- Fertiliser
- Others: e.g. insect protein



Challenges

Financial implication of the operation



Challenges

Financial risks of the operation to investors

Feedstock

- Lack of certainty in the quantity and quality throughout the estimated operational life of the infrastructure

Treatment operation

- Lack of operational competence
- Lack of sufficient level of gate fee guaranteed for the estimated operational life of the infrastructure

Outputs

- Lack of certainty in the pricing of products in the market
- Lack of control of quality of products
- Lack of market demand for certain products at a favourable price level
- Lack of production scale to achieve offtake contracts at a favourable price level

Challenges

Other major risk factors viewed by private equity investors

- Lack of PPP law
- Payment risk from local government
- Technological risk
- Currency risk
- Political risk – negative, uncontrollable risks as a result of a change of government

Opportunities

Overall: increasing climate finance & national commitment to methane reduction

- Increasing market demand for organic products for agriculture & horticulture
- Increasing market demand for sustainable replacement of animal feed
- Price premium for bio-sourced energy being set up by willing governments
- Opportunities from carbon credit markets

02

The Potential Role of Carbon Credits

Carbon Credits: Brief Explanation

Carbon credits can potentially provide an **additional source of revenue** to support the operational expenses of Municipal Solid Waste (MSW) projects

Carbon credit is a **tangible product**

The reduced methane emission from organic waste collection and processing, upon **verification by a third-party**, can be equated to CO_2 equivalent and then translated into carbon credits, generating additional revenue for projects.

- 1000 tonnes of MSW are estimated to emit approximately1600 tonnes CO2e*

Projects need to demonstrate **additionality**

Credits can be traded within **compliance** or **voluntary mechanisms**

*Based on preliminary calculations by Catalytic

Carbon Credits: Opportunities and Limitations

	Opportunities	Limitations
Voluntary Markets	➢ Flexible entry ➢ Faster approval ➢ Lower transaction cost	➢ Price volatility ➢ Shorter offtakes ➢ Small market size ➢ Unstandardised market framework
Domestic Compliance Markets	➢ Regulatory Alignment ➢ Government-driven demand ➢ Financial incentives	➢ Limited market size ➢ Limited sectoral coverage ➢ Regulatory and Policy Uncertainty
International Compliance Markets	➢ Stable pricing ➢ Standardisation ➢ Support for developing countries	➢ Higher compliance costs ➢ Regulatory uncertainty ➢ Complex mechanism ➢ Unequal access

How to tap into Carbon Credits

Submission of prior consideration

1 **Stakeholder consultation**

Host country approval

2 Send **documents** for preliminary review

3 Project is **listed** in registry(ies)

4 Appointment of independent **Validation and Verification entity**

5 **Submission** of validation report and documentation for review

6 **Project registration**

7 **Monitoring**

8 Independent verification of results -> **Verification report**

9 **Credit issuance**

Additional steps from Article 6.4

GMI Financial Readiness Framework

1 2 3 6

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From Policy to Action for the Improvement of Organic Waste Management and Mitigation of Emissions. Case Study - Uruguay

From policy to action for the improvement of organic waste management and mitigation of emissions

Case study - Uruguay

Magda Correal
Sr Specialist
Water and Sanitation Division (INE/WSA)
Interamerican Development Bank

AGENDA

MORE ABOUT THE IDB

FROM POLICY TO ACTION IDB

PROGRAM TO SUPPORT POLICY REFORM IN WATER RESOURCES AND SOLID WASTE – URUGUAY (US$200M)

FOOD LOSS AND WASTE REDUCTION STRATEGY - SINDESPERDICIO

TOO GOOD TO WASTE – TRESOR PROPOSAL

CONCLUSIONS

FROM POLICY TO ACTION

THE IDB APPROVED $12.7 BILLION IN FINANCING IN 2023.

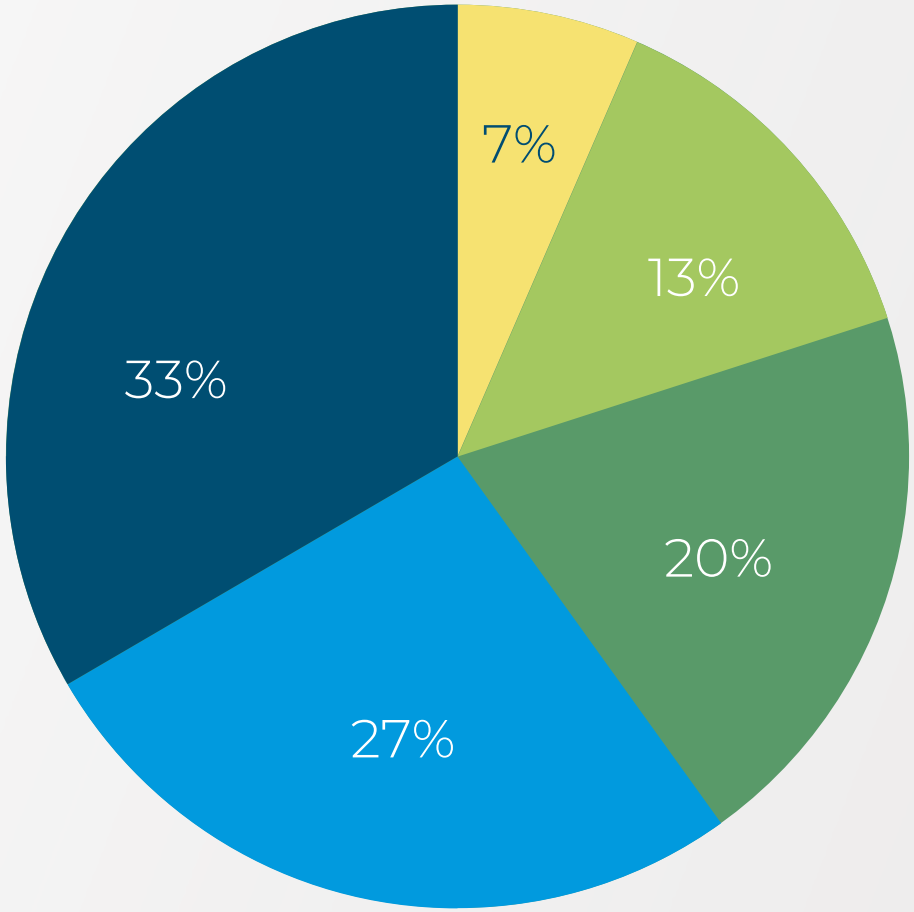
Infrastructure & Environment

Institutions for Development

Social Sector

Multiple Sectors

Integration & Trade



IN TOTAL, THE IDB FINANCED & MOBILIZED NEARLY

$24.3 billion.

FROM POLICY TO ACTION

The water, sanitation and solid waste division has an active portfolio of **88 loan operations** under execution for **US$ 8,488 MM**

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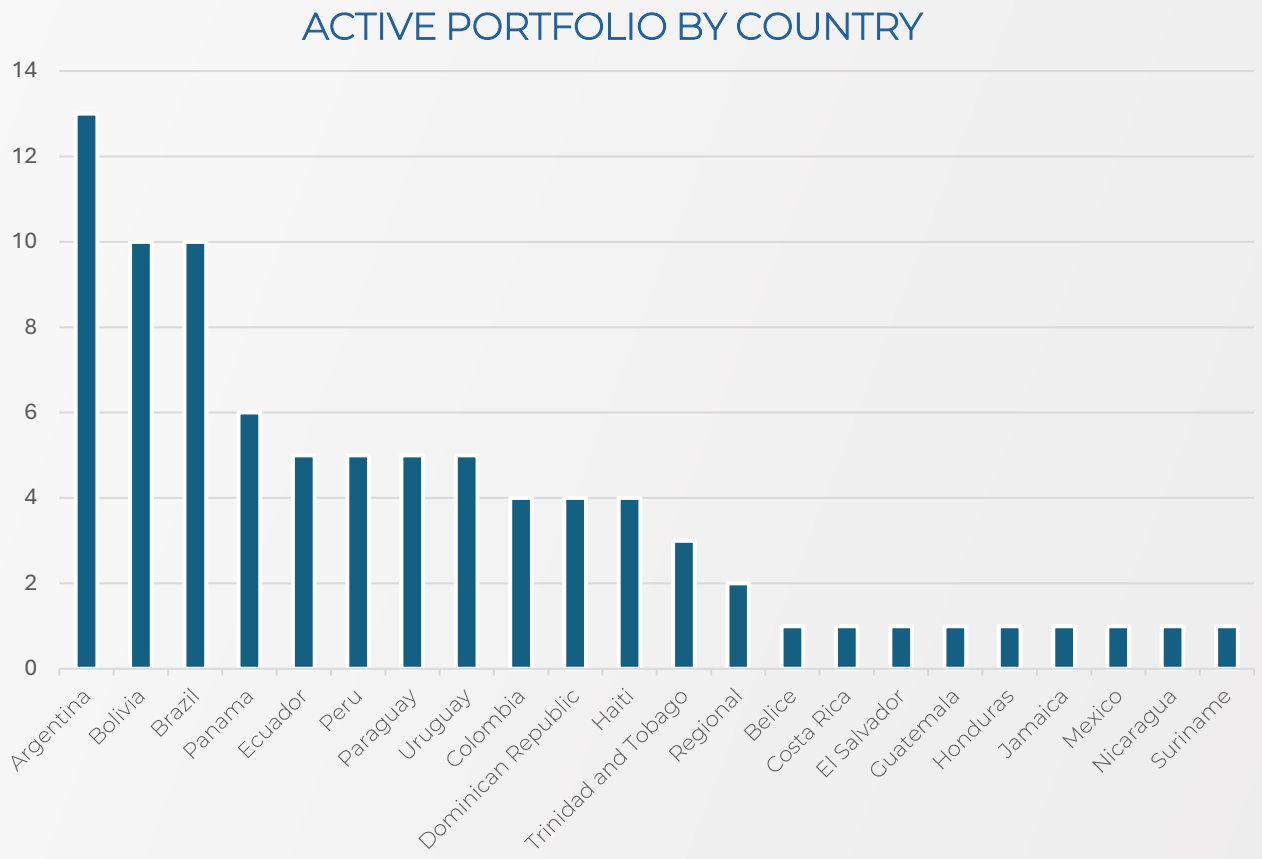
Investment Loans & Grans

Policy Based Loans

Technical Assistance Grants & Consultancies



Program to Support Policy Reform in Water Resources and Solid Waste
UR-L1195 (US$200M)

Contribute to Uruguay's water security and environmental sustainability with an approach based on circularity and climate change adaptation and mitigation.

(i) to improve water resource management and water services quality, increasing resilience to extreme events;

(ii) to strengthen solid waste management with a circular economy approach

MORE ABOUT THE PBL

Development Challenges and Economic and Social Impacts

	Development Challenges		Economic and Social Impact
1	Weak integrated water resources management	Lack of operational instruments to mitigate the impact of extreme events	 US$ 1.9 billion
			 US$230 M/year
		Vulnerability of the drinking water system for human consumption	 1.8 million people without drinking water
2	Weak integrated solid waste management	Environmental liabilities due to inadequate waste disposal	 35% inadequate SW disposal
		Linear model without circular vision and highly informal	 3% recycling rate
		Food waste	 10% of food is wasted

Expected results and long-term effects

	Policy Reforms	Outcome Indicators	Impact Indicators (2032)
1	**Water Resources** • Protocols for extreme events • Strengthening Ministry of Environment • Basin Plans • Inter-institutional coordination to reduce water losses • Regulatory framework to reduce water pollution	• Cities adopting flood early warning systems • Projects with actions for sustainable development • Drought resilient water supply systems	400% increase of the population protected from flooding 12% reduction of pollutant load in surface water bodies Reduction of water losses: 56% to 45%
2	**Solid Waste** • Regulatory framework to promote circular economy • Fund for solid waste projects • Strengthening the municipalities for solid waste management	• Production chains with plans to reduce food losses • Departments with waste recovery plans • Investment executed in solid waste projects	Avoided emissions Ton CO2eq/year 0 to 430,000 Waste recovery rate: 3% to 85% Inadequate solid waste disposal: 35% to 5% Formalization of informal waste pickers: 0% to 70%

Component III: Solid Waste and the Circular Economy

- **National Food Loss and Waste Prevention and Reduction Strategy**.
- **Food Donation Law** for food security and prevent waste.
- **National Packaging Management Plan** (Plan Vale) for retrieval and recovery, involving private sector.
- **National Waste Recyclers Registry System** (SNRCR): gender and disability inclusion.
- **National Fund for Residential Solid Waste Management** to finance projects by departmental authorities.
- **Agreements for Waste Management Improvement** by the Ministry of Environment and 8 departmental authorities.
- **Rules on special waste management** - updated decree on industrial solid waste and preparation for electrical and electronic waste.

National Food Loss and Waste (FLW) Prevention and Reduction Strategy

Led by the Ministry of Environment

Supported by IDB #SinDesperdicio

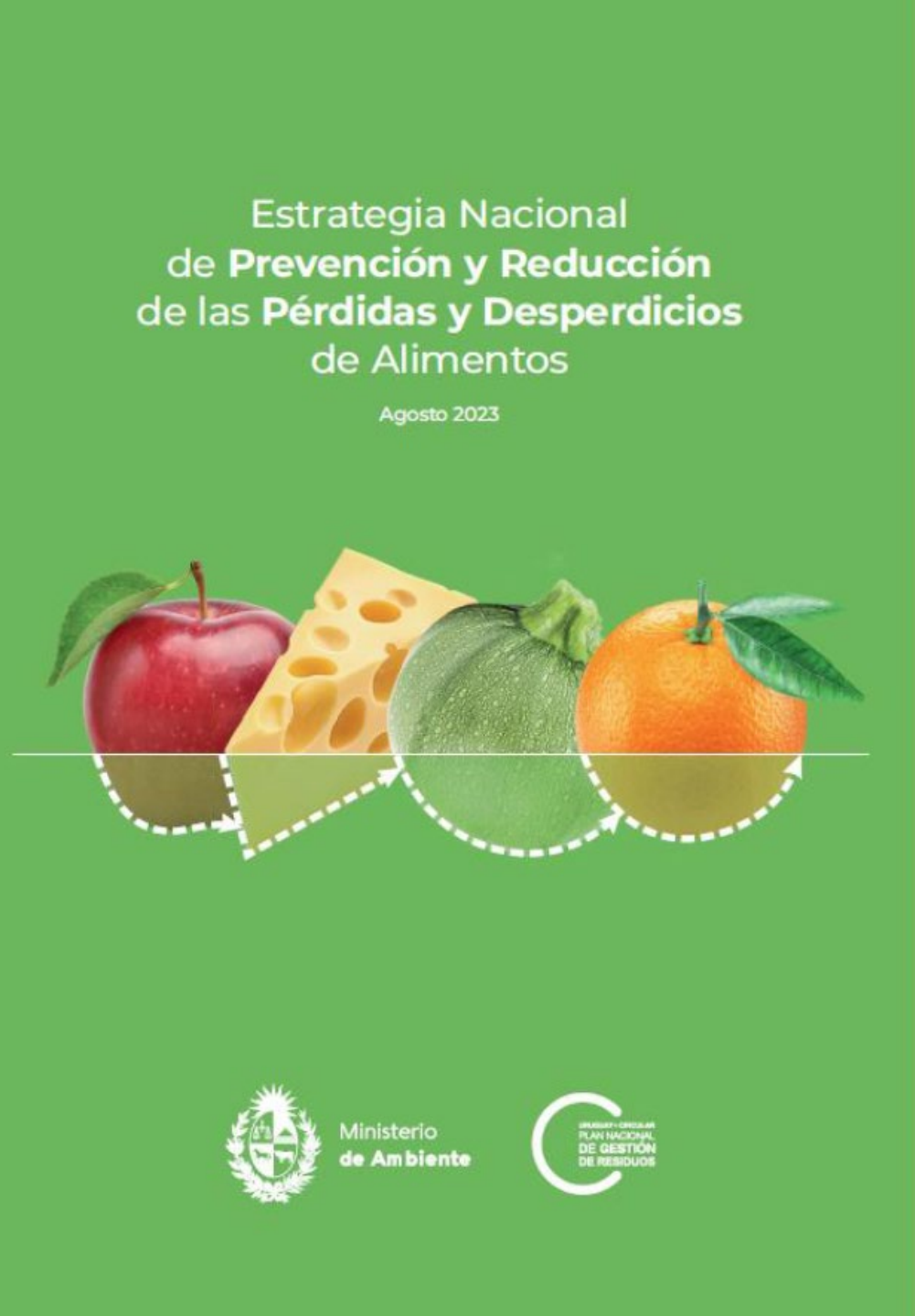
In line with National Waste Plan

Obj 4 – framework for FLW, based on data and cooperation between actors

Obj 5 – solutions to prevent, minimize and manage FLW in the production chain.

Obj 6 – National strategy for FWL towards the population, innovation and entrepreneurship.

TO READ THE STRATEGY

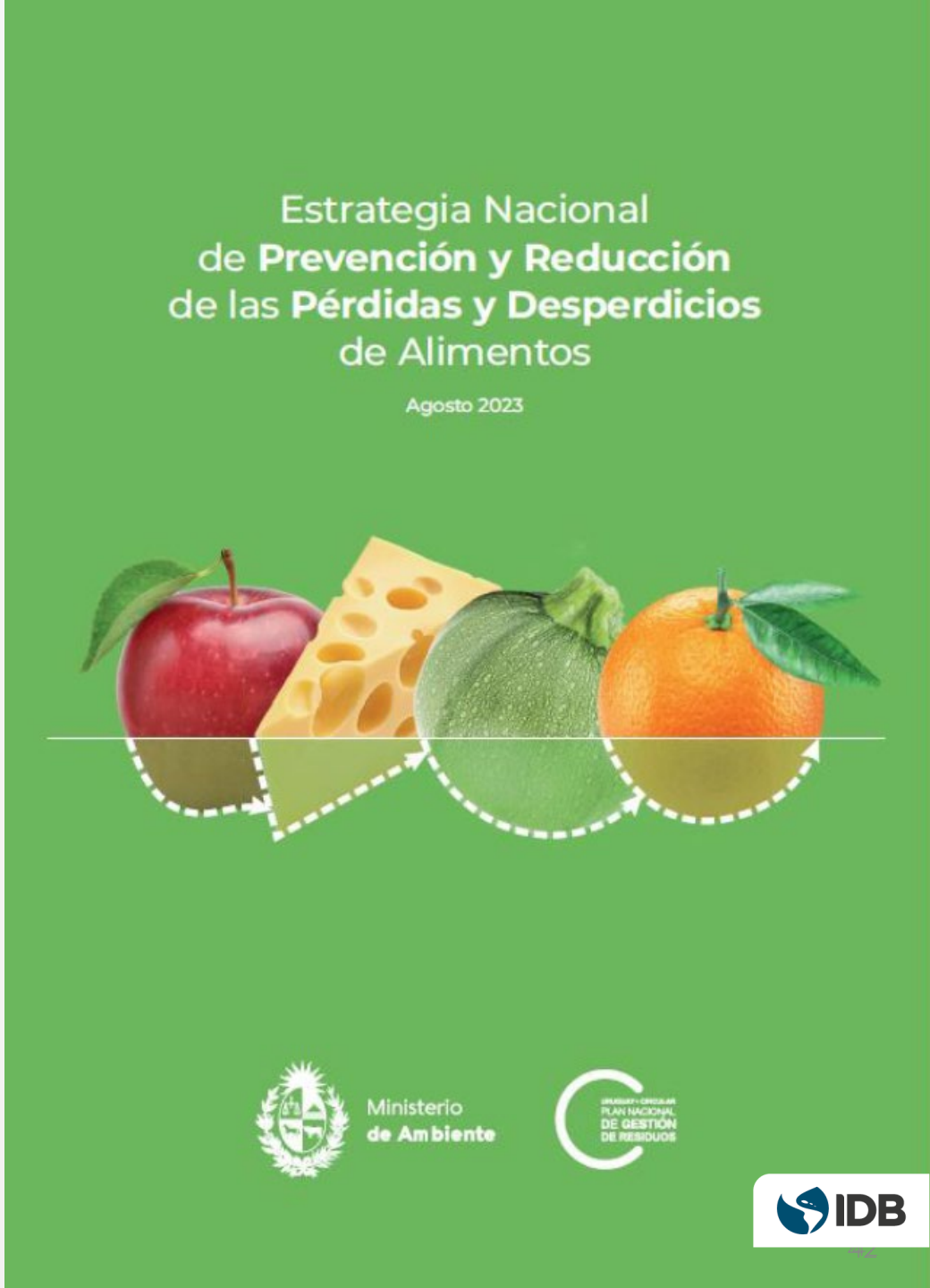


National Food Loss and Waste (FLW) Prevention and Reduction Strategy

THE SITUATION IN URUGUAY

1 million ton of food are lost or wasted, representing 10% of required food.

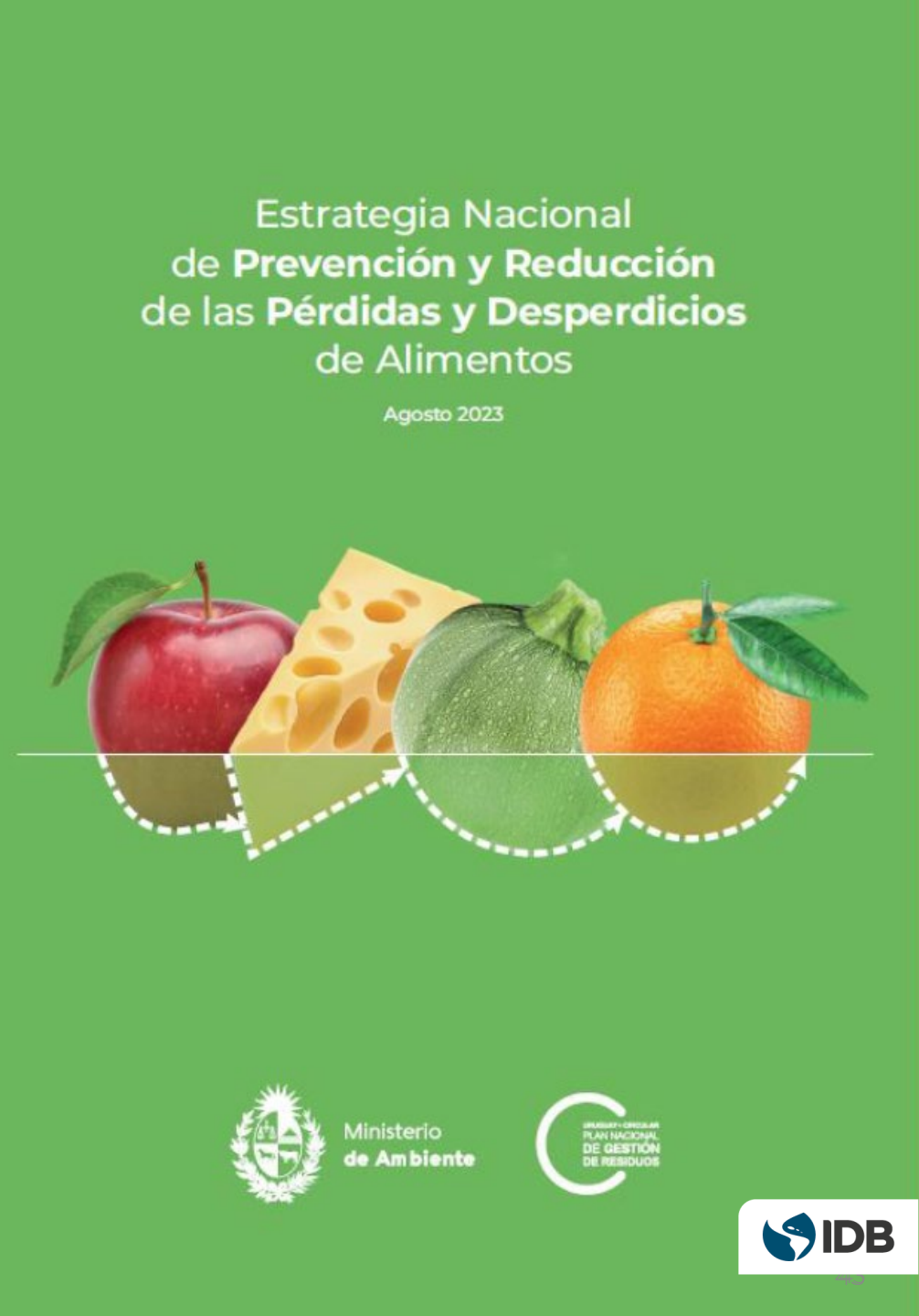
66% of the volume of food lost are in harvest and post-production (representing US$600M).



National Food Loss and Waste (FLW) Prevention and Reduction Strategy

STRATEGIC OBJECTIVES AND APPROACHES

- STRENGTHENING AND INTEGRATION OF PUBLIC POLICY
- SUSTAINABLE AND RESPONSIBLE VALUE OF CHAIN
- RECOVERY, DISTRIBUTION AND CIRCULARITY IN FOOD – A VISION OF FOOD SAFETY
- CHANGE OF BEHAVIOUR TOWARDS A BETTER MANAGEMENT OF FOOD



Change of behavior for solid waste management in Uruguay

BETTERMENT OF THE SEPARATION AND SEGREGATION OF RECYCLABLE SOLID WASTE

- TARGET, EXPLORE, METHODOLOGY.
- BARRIERS AND PROMOTERS
- SOLUTIONS BASED ON BEHAVIORAL SCIENCES
- EVALUATE THE BEST SOLUTION FOR PROMOTING DIFFERENTIAL WASTE COLLECTION TO USERS

*CONSULTANCY UNDER EXECUTION BY THE BEHAVIOURAL INSIGHTS TEA

Too Good to Waste

INITIATIVE TO MITIGATE METHANE EMISSIONS FROM WASTE IN LATIN AMERICA AND THE CARIBBEAN

STRUCTURE A PORTFOLIO OF BANKABLE PROJECTS

CALL FOR PROPOSALS 2024: 230 PROPOSALS FROM 20 COUNTRIES (US$37M)

APPLICANTS: 112 GOVERNMENTS, 67 OPERATORS, 51 OTHERS. FROM BIG CITIES (BUENOS AIRES, BOGOTÁ, MÉXICO CITY, MONTEVIDEO, BRASILIA)

16 PREVENTION AND REDUCTION

194 VALORIZATION

20 BIOGAS CAPTURE AND CLOSURE OF DUMPSITES

IDB

Too Good to Waste

EVALUATION OF ALTERNATIVES FOR A BETTER MANAGEMENT OF MONTEVIDEO'S ORGANIC WASTE - TRESOR

(i) Valorization of organic waste from Montevideo to expand and complement current initiatives.

(ii) Analyze the use of other technologies to complement such as anaerobic digestion.

(iii) Integrate with collection of waste from commercial and household organic waste.

IDB

Differential organic waste management
Intendencia de Montevideo -**TRESOR**

In 2024, TRESOR recovered 16,000 tons of organic waste.

Treating organic waste primarily from large generators.

In Puntas de Manga, since 1999.

Since 2017, TRESOR operates as a trust with the Municipality of Montevideo and the National Corporation for Development as trustee.

Intendencia Montevideo

TRESOR

IDB

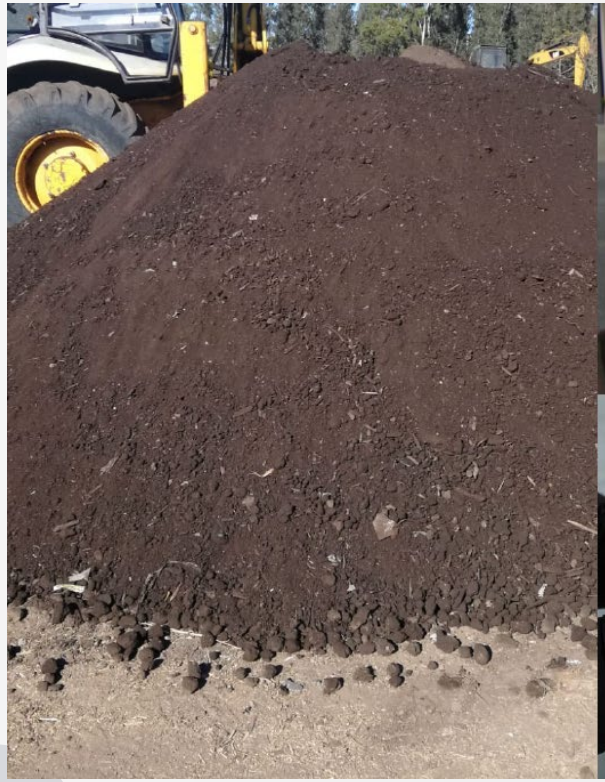
47

Composting Plant

15,000 m³ of Organic Waste: 2/3 industrial, 1/3 vegetables, crops, and mowing activities.

COMPOSTING TECHNOLOGY WITH OPEN-PIT PILES, TURNING OF PILES WITH EXCAVATING EQUIPMENT AND CONTROL OF STAGES

Quality control of the compost with an external lab against standards: organic matter, nitrogen, phosphorous, potassium, pH, metals, bacteria.



57% OF THE PRODUCT IS KEPT BY THE INTENDENCIA, 26% SOLD, 17% DONATED.

Intendencia Montevideo

TRESOR

IDB

Differential organic waste management
Intendencia de Montevideo -TRESOR

The plant is reaching its full operational capacity with current technologies and facilities.

Increase and strengthen organic waste valorization options. Improve the composting process and the resulting product portfolio and other valorization techniques.

According to the Montevideo Solid Waste Management Plan, the goal is to increase the valorization of organic waste of the commercial sector by 18,000 tons per year by 2030.

TRESOR must at least double its recovery capacity to meet future demand.

Intendencia Montevideo

TRESOR

IDB

URUGUAY case study reflects the relevance of navigating through the **financial readiness framework** steps, for instance:

(i) A **project plan and prefeasibility** will be included as part of the TRESOR Too Good to Waste initiative to double organic treatment capacity in Montevideo. Determining technology, alternatives, and market.

(ii) If viable, prefeasibility studies can move to an **assessment of feasibility and a possible finance source** via IDB Group + co investors or other financing institutions.

(iii) The existence of a trust (TRESOR), private involvement, **climate financing** is evaluated during each stage of assessment to determine **project funding/finance**.

(iv) In parallel **mitigation of risk** is underway via the regulatory adherence, material availability (change of behavior), and others, to enable the technologies, instruments, market, incentives.

TO CONCLUDE

- Uruguay exemplifies the **synergies** for financing waste management and a circular economy from an integrated manner.

- **Articulating policies** that enable the structuring of projects with public and private participation to handle differential fluxes of waste.

- **Policy**: waste management plan and strategies for focused waste streams, supported by the IDB policy-based loan.

- **Action**: structured projects for organic waste management.

- The **IDB supports Uruguay and the region**, with cooperation and loans from policy to action.

Case Studies from Recycle Organics Program

Case studies from RECYCLE ORGANICS PROGRAM

Gerardo Canales, Program Director

January 2025

gcg@implementasur.com

RECYCLE ORGANICS

Reducing Methane From Waste

1. The Recycle Organics Program

2. Approach

3. Case studies

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01.

The Recycle Organics Program

REDUCING METHANE EMISSIONS IS THE

FASTEST WAY TO ADDRESS CLIMATE CHANGE IN THE SHORT TERM

Objectives

- Accelerate the **implementation of methane mitigation projects** in the waste sector.
- Create **enabling conditions** for the expansion of sustainable technologies for management of organic waste.

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02.

Approach

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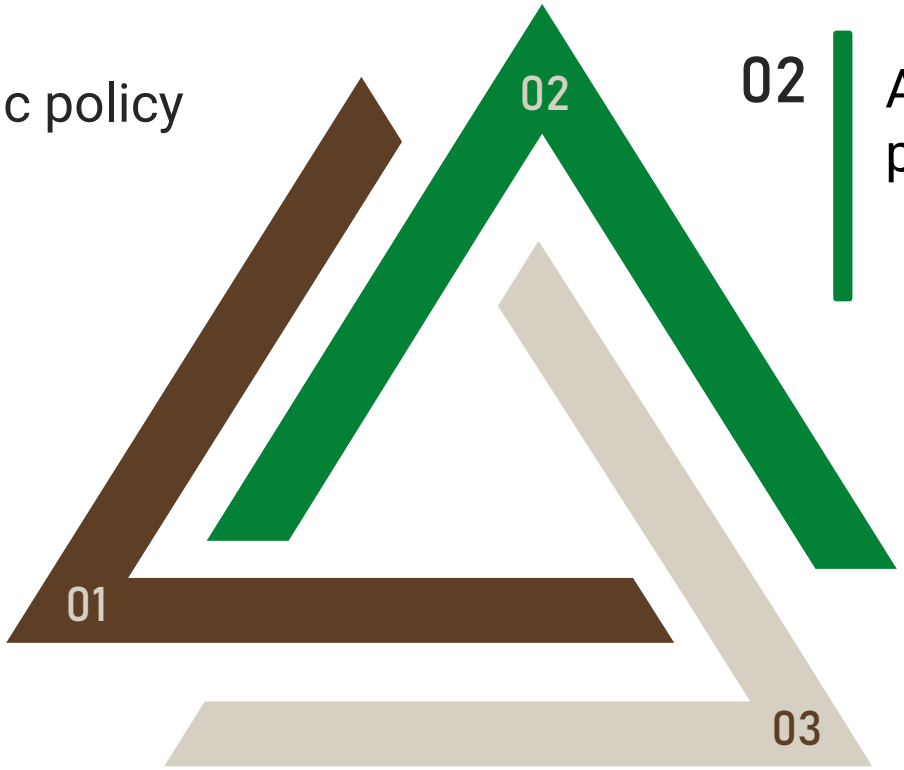
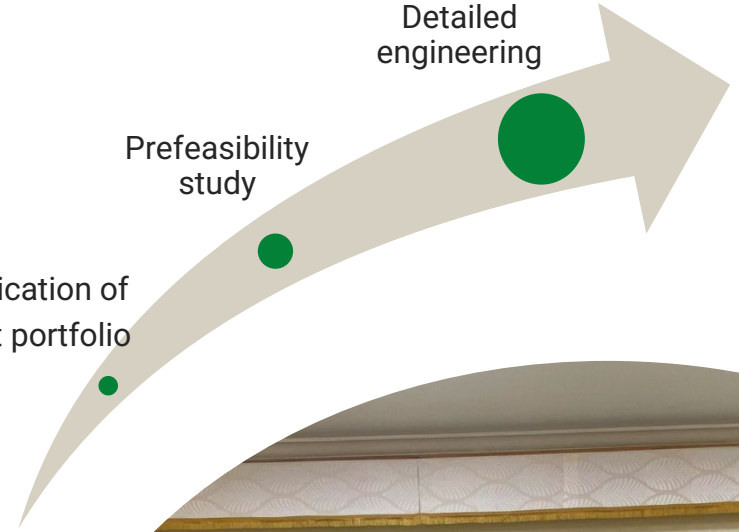
01 Public policy

02 Acceleration of project portfolios





We support the creation of enabling conditions to accelerate action

03 Awareness raising and information sharing

Together addressing methane mitigation in the waste sector for over 8 years

RECYCLE ORGANICS

Latin America

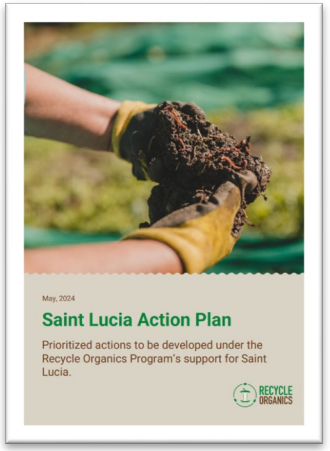
Caribbean

Asia, Africa, and Oceania

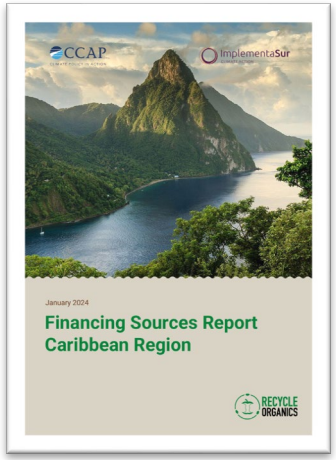
23 Beneficiary Countries

Case of Recycle Organics assistance in Saint Lucia:

Approval of Letter of Intent



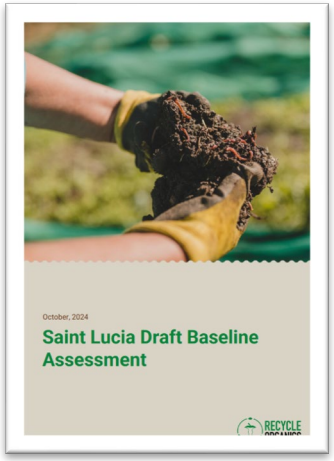
Action Plan



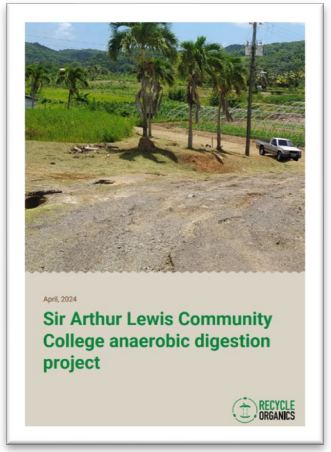
Financial sources identification

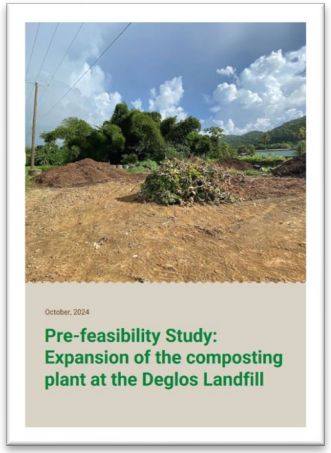
Hospitality Sector's OWM Network and Educational Program

Saint Lucia Baseline Assessment
1st Country Visit: Country Project launch and technical workshops



Project portfolio and prefeasibility studies





Organic Waste Management (OWM) Draft Regulation

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3. Case studies

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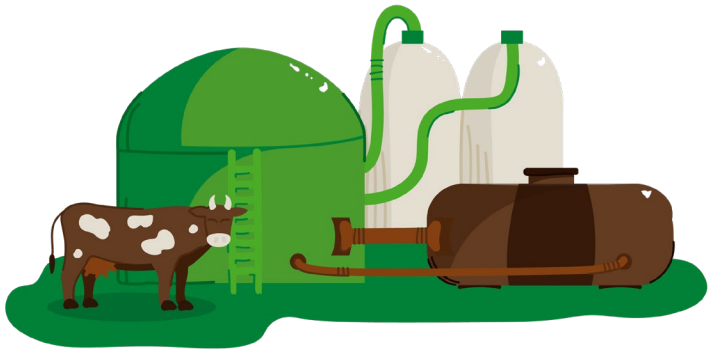
Main Mitigation Technologies

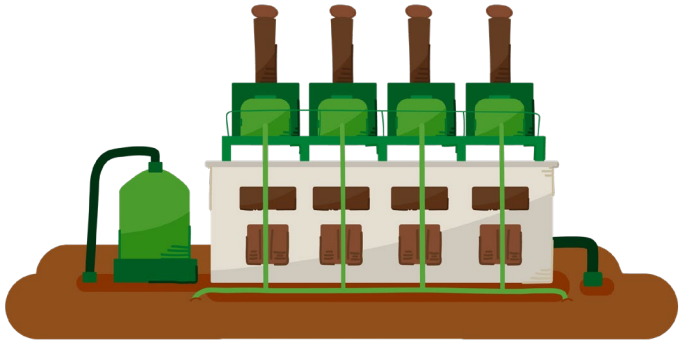
Composting

- Organic matter is decomposed in an aerobic process and recycled as compost/soil amendments.
- Compost is rich in nutrients and is used in agriculture and organic farming.
- Proven technology of > 25 years.



Anaerobic Digestion

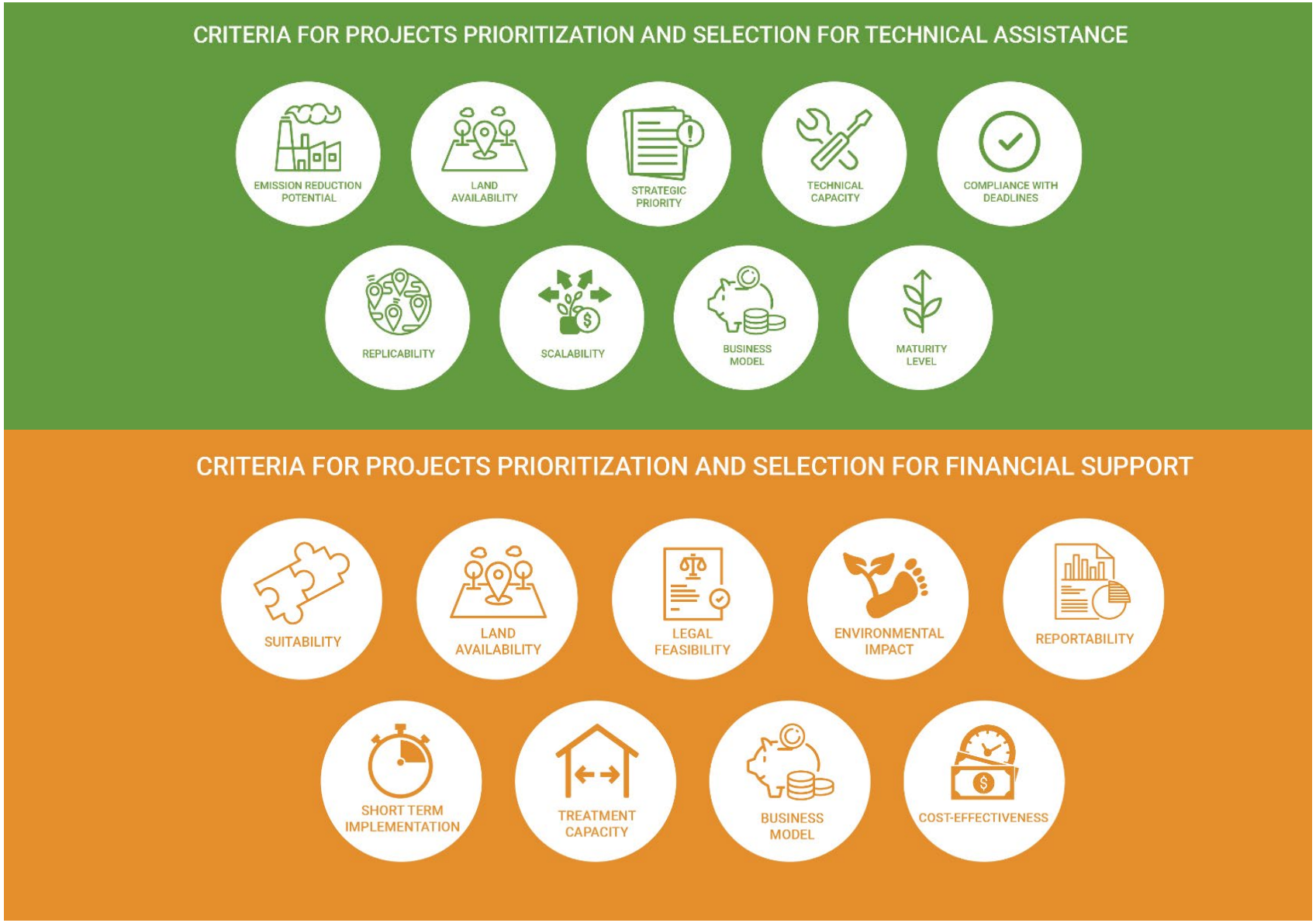
- Organic waste is decomposed in the absence of oxygen to create biogas.
- Biogas can be used directly as fuel for vehicles or to generate electricity and heat, replacing fossil fuels.
- Proven technology of > 25 years.



Landfill Gas to Energy (LFGE)

- LFGE projects allow combusting LFG directly to produce heat (e.g., for industrial applications), using LFG to generate electricity or converting LFG into compressed natural gas to fuel vehicles.
- Proven technology of > 25 years.

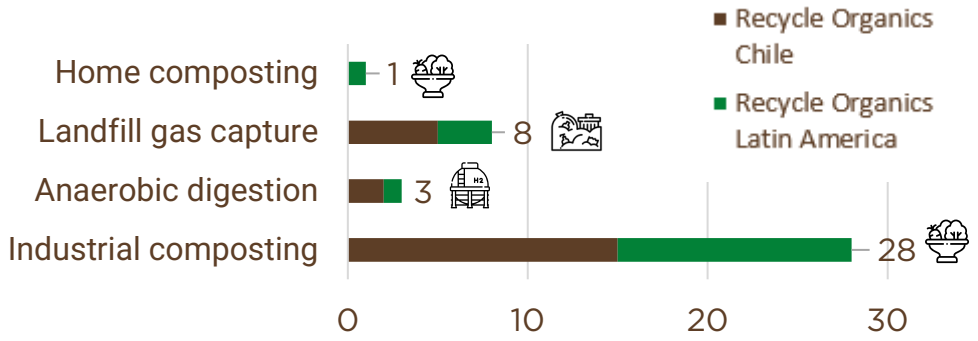
Portfoilio Identification and criteria for prioritization for financial support



Impact of Recycle Organics – Chile & Latin America

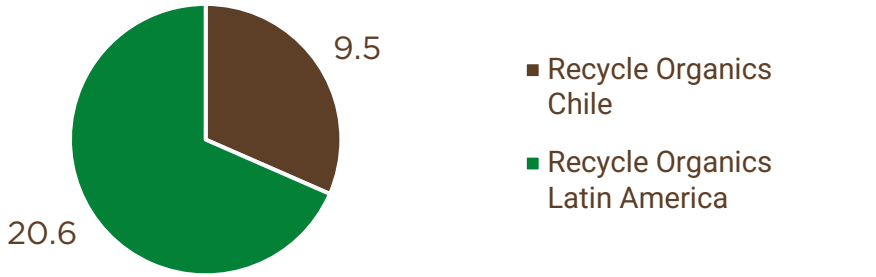
40 **projects**

supported technically and financially



30 **million tonnes of CO_{2e}**

could be mitigated in 20 years with the implementation of the 40 supported projects



25 **million USD** leveraged in five years of Recycle Organics Chile with one million of capital investments

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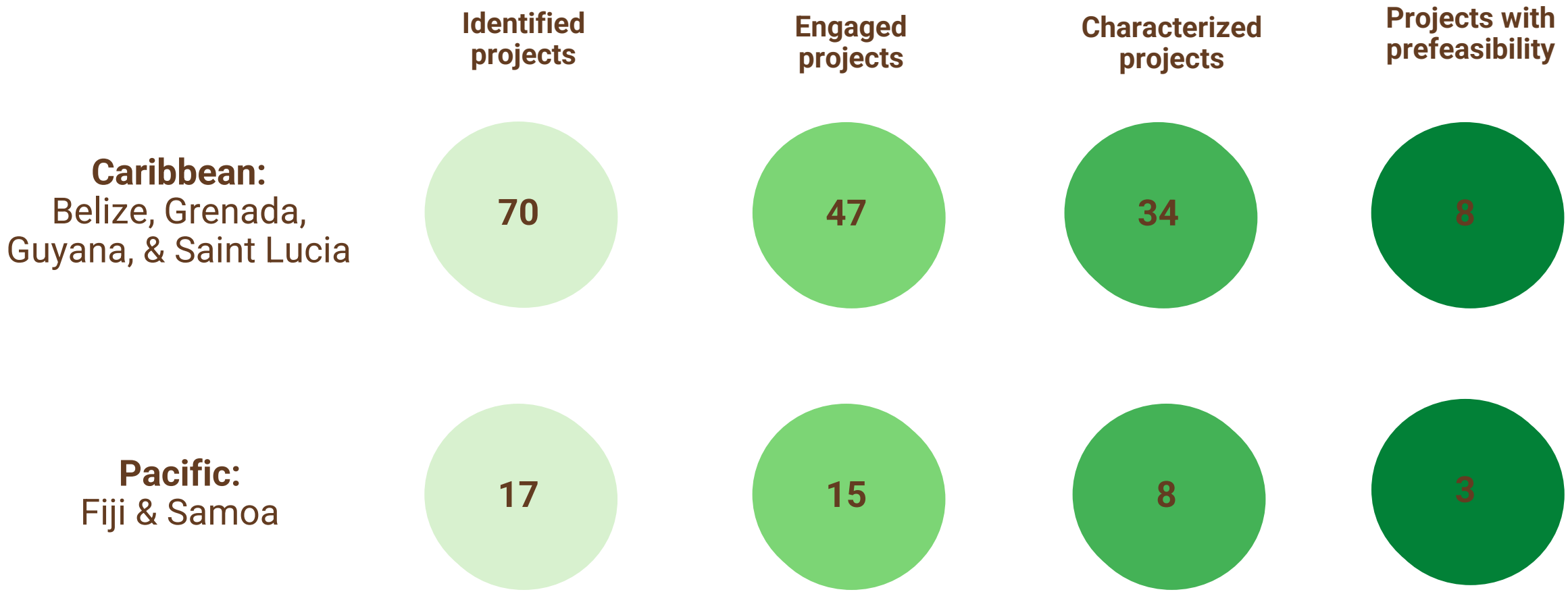
Recycle Organics Portfolio in Latin America

	Chile	Costa Rica	Dominican Republic	Mexico	Peru	Uruguay
						
Number of projects	18	7	2	3	7	2
CAPEX Range	$546,000 - $2,782,000	$40,000 - $4,561,000	$684,000 - $4,744,000	$949,000 - $8,699,000	$919,000 - $3,439,000	$846,000 - $7,059,000
CAPEX Average	$1,282,000	$1,586,000	$2,714,000	$4,914,000	$1,912,000	$3,953,000

Recycle Organics in SIDS - Identification of 85+ Projects



Portfolio of Assisted Projects in SIDS

- **Ten projects** in **the Caribbean (7)** and **the Pacific (3)** with completed pre-feasibility studies to characterize the projects and develop potential business models.
- Projects include **compost plants** at landfills, a **compost pilot project**, and a **biogas system project**.
- Eight of the projects have public developers, one has a private developer, and one is a Public-Private Partnership.
- CAPEX ranges from $46,500 to $5.3 million, with an average of $1.32 million.
- The projects' business models' main endogenous risks include limited presence of the technologies in the countries, lack of markets for by-products, and uncertainty about the continued availability of organic waste as raw material. These risks and potential viability gaps justify the need for concessional financing.

Indicator	Value
Total Treatment Capacity (TPY)	123,854
Total Avoided Landfill Area (m2)	5,793
Total Reduction Potential (tCO2e)	736,955
Total CAPEX	$13.2 million
Total OPEX	$858,676
Average Abatement Cost ($/tCO2e)	$16
Average IRR (%)*	21%
Average Payback (years)*	10
Total Jobs Generated	39

* For most likely financing scenario

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Project Development Risks & Mitigation Strategies

	Risks	Mitigation Strategies
Public Projects	**Lack of resources for long-term operation:** insufficient funding or support to operate the plant, maintain machinery, transport segregated waste, and distribute compost	Establish public-private partnerships (PPPs) with long term contracts to secure long-term financing; governments can set tariffs, offer subsidies, tax incentives, or grants to attract private investment.
	Operational failures: poor plant operation can result in bad odors and conflicts with surrounding communities	Training programs and educational materials (due to staff turnover); protocols and investments in odor management; community engagement
	Absence of financial incentives: since compost is often not sold, there is little motivation for proper operation and maintenance	Translate savings in waste management into treatment incentives; market development for byproducts (compost, compost tea, seedlings)
Private Projects	**Uncertain revenue streams:** in many countries, profitability is uncertain due to underdeveloped byproduct markets	Market assessments; long term contracts on waste treatment and byproduct provision to farmers; market development, branding, and certification
	Material collection challenges: lack of cooperation from waste generators/collectors and input material contamination can disrupt operations	Community awareness campaigns; incentivized segregation (i.e., through compost giveaways); collaborate with partners that produce specific waste streams (agriculture, etc.)
	High initial investment costs: Private projects face significant upfront costs. Local banks often perceive these projects as high-risk due to the lack of local examples or proven success stories.	Connect with concessional funding ready to accept initial risk; start with pilot projects to demonstrate viability; PPP to share costs and risks
All Projects	**Lack of local expertise:** insufficient local capacities to operate and manage the plant effectively	Partner with universities, technical institutes, and international companies/experts to support capacity building and education
	Technical challenges: limited local expertise to repair machinery or adapt technology to local conditions, leading to operational delays or failures	Collaborate with local engineers and suppliers to adapt foreign technology; develop local capacities for maintenance

Project acceleration

Project Financing and implementation

- Example in Talca, Chile:
  - Largest municipal composting plant in Chile
  - RO completed detailed engineering for the project
  - RO provided forced aeration membranes
  - Chilean government funded the infrastructure
  - The contract was adjusted so the company operating the landfill will also take on the operation of the composting plant.

Composting plant in Talca, Chile

Home and Community Composting Programs

- Recycle Organics Chile
  - Provided 2,000 bins to five different locations
  - Contributed to the increase in home-based programs across the country, which have continued to grow

- Recycle Organics SIDS
  - Delivering 800 composting bins in four countries in the Caribbean in 2024 and 2025
  - Plan to deliver 400 composting bins to two countries in the Pacific in 2025

Training session for home composting in Santa Lucia
October 2024

Case 1 – Compost Plant at Sanitary Landfill under PPP

- Composting project developed by a private operator in collaboration with the Ministry of Regional Development.
- Aims to process around 200 tonnes of organic waste (vegetable waste, animal manure, sawdust, etc.) per day to prolong the lifespan of the country's only landfill
- The compost produced can be used to as daily cover at the landfill.

Indicator	Value
Treatment Capacity (TPY)	57,600
Avoided Landfill Area (m2)	2,688
Total Reduction Potential (tCO2e)	324,862.94
CAPEX	$5,288,412
OPEX	$210,684
Abatement Cost ($/tCO2e)	$14
IRR (%)*	18%
Payback (years)*	12
Jobs Generated	7

The beneficiary population would include **550,000 inhabitants**.

* Concessional and commercial debt financing scenario

Scenario evaluation

Economic Indicators	Public – non-reimbursable financing	PPP – Concessional debt financing	PPP – Concessional and comercial debt financing
CAPEX financed with private equity (USD)	1.9 MM	1.6 MM	1.6 MM
CAPEX financed with debt or non-reimbursable funds (USD)	3.4 MM non reimbursable	3.7 MM concessional debt	1.85 MM concessional 1.85 MM commercial
Average OPEX (USD)	210,700	458,200	516,300
NPV (USD)	8 MM	1.8 MM	1.02 MM
IRR (%)	39.8	24	18
Payback (years)	5	7	12
Compost price breakeven (USD/ton)	-23*	25	36
Treatment fee breakeven (USD/ton)	-6	0	3

*The compost price breakeven implies that the project would still be viable even if you lose up to USD 23 per ton of compost sold. Similarly, the savings on disposal breakeven means that the project would still be viable even paying USD 6 per ton of waste received.

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Reducing Methane
From Waste

/ Recycle Organics

www.reciclorganicoslac.org

Strategic Partners: CCAP ImplementaSur CLIMATE ACTION

Funders: Environment and Climate Change Canada | Environnement et Changement climatique Canada | Global Methane Hub | CLIMATE & CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS | IDB Inter-American Development Bank

Questions & Answers

Thank You!

Global Methane Initiative
Leading methane action since 2004

Final materials will be posted to:

www.globalmethane.org

Questions?

secretariat@globalmethane.org