CLIMATE FUNDING FOR WASTE MANAGEMENT PROJECTS IN LATIN AMERICA

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Dialogue. Insight. Solutions.

CCAP

CENTER FOR CLEAN AIR POLICY

CENTER FOR CLEAN ARE POLICY (CCAP)

Who we are and what we do

CENTER FOR CLEAN AIR POLICY (CCAP)

Our history

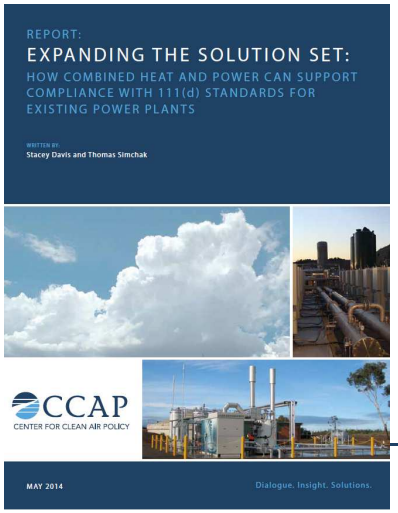
- +30 experience
- Work across sectors: energy, transport, waste
- Work at national and city level
- Direct NAMA Facility and GCF engagement

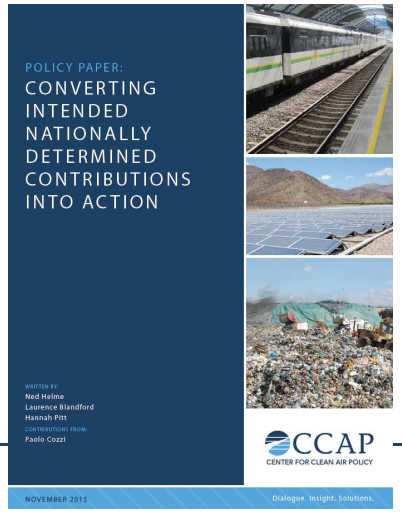
What we have done

- Acid Rain Legislation
- EU Carbon Market Design
- Early design and promotion of NAMA concept
- Work on-the-ground advancing practical solutions

Our approach: Dialogue. Insight. Solutions.

- Technical, Policy, and Economic Analyses
- Publications and Outreach
- Multi-Stakeholder Partnerships and Dialogues
- Innovative Solutions
- Execution





CCAP'S MITIGATION ACTION IMPLEMENTATION NETWORK (MAIN) – MOBILIZING ACTION

Goals:

- Create networks of policymakers involved in NAMAs in Asia and Latin America
- Build capacity to develop bankable NAMAs
- Facilitate financing for early NAMAs
- Help countries go from NAMAs to INDCs to NDCs

Components:

1. Regional dialogues of policymakers, experts, climate finance providers, private sector
2. Harvesting of best practices, case studies, policy solutions
3. Support for NAMA design, enabling policies, accessing financing
4. Bring MAIN countries input into UNFCCC, GCF, and other institutions

Supported by:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the Parliament of the Federal Republic of Germany

DANISH MINISTRY OF CLIMATE, ENERGY AND BUILDING

Achievements under the MAIN Initiative

Building capacity in 16 countries in Asia and Latin America to define and develop the most promising national climate policies

LAC

- Argentina
- Chile
- Colombia
- Costa Rica
- Dominican Republic
- Ecuador
- Mexico
- Panama
- Peru
- Uruguay

Asia

- Indonesia
- Malaysia
- Pakistan
- Philippines
- Thailand
- Vietnam

Achievements under the MAIN Initiative

Climate Finance Project Development and Implementation

- **Over 20 NAMAs concept developed** – 2 reaching implementation stage and several others in later stages of project development

Climate Finance Capacity Building

- More than **40 climate mitigation and adaption dialogues and capacity building events** in the last six years
- Establishment of **regional networks** involving over **90 policymakers in Latin America and 50 policymakers in Asia**
- Promotion of development and financing of transformational NAMA proposals by **engaging with GCF, IDB, IFC, EIB, CAF and NAMA Facility**

Green Climate Fund (GCF) engagement

- **Official observer** organization to the GCF since it became operational

CCAP AND THE GREEN CLIMATE FUND (GCF)

Mobilizing finance for project implementation

CCAP ENGAGEMENT WITH THE GCF

GCF Policy Framework

- Since its inception, CCAP has **engaged in Board decision-making processes** to promote enhanced transparency and accountability in the Fund's policies
- CCAP currently works towards:
  - **(i) providing input to the development of investment criteria indicators** (indicators that guide the evaluation of funding proposals and funding allocation against the Fund's criteria)
  - **(ii) strengthening the Fund's results management framework**

CCAP ENGAGEMENT WITH THE GCF

Private Sector Engagement

- CCAP is supporting the Fund's dedicated Private Sector Facility in **designing a roadmap to engage the private sector and mobilize private investments** in low carbon, resilience projects across Africa, Asia, LAC, and Eastern Europe

- CCAP also **advises private sector actors** on strategic ways to tap into GCF resources (e.g. Veolia)

CCAP ENGAGEMENT WITH THE GCF

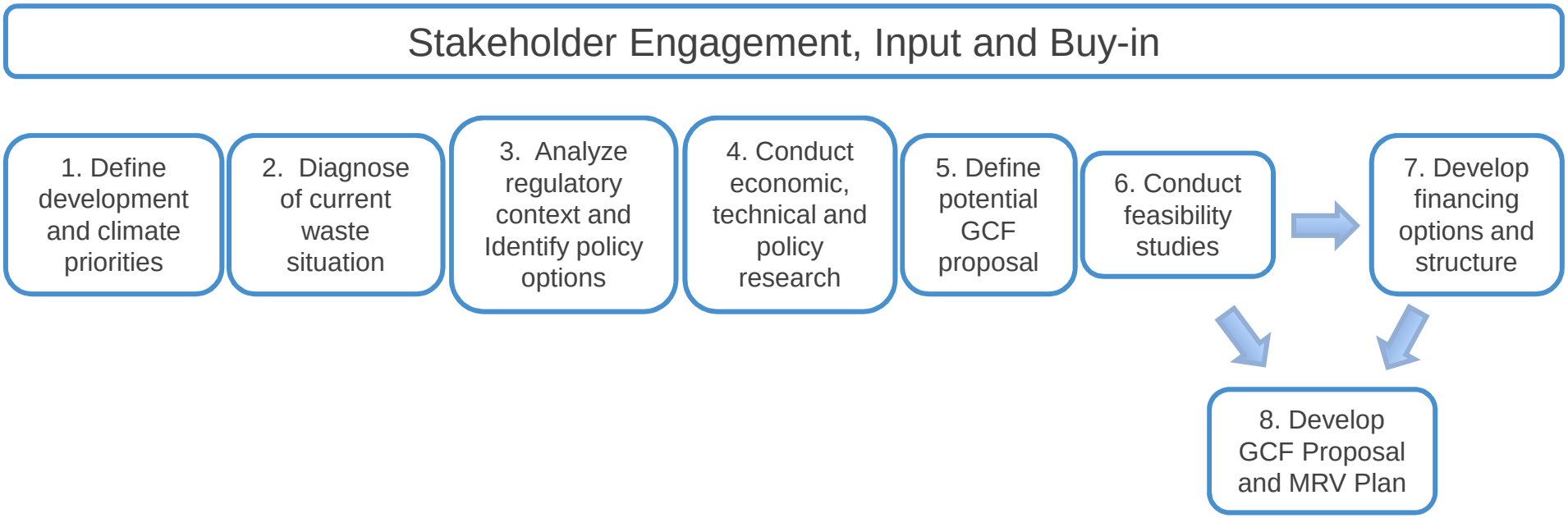
Developing Country Access

- CCAP also **supports developing countries** in their process to access GCF funding:
  - ✓ By advising the elaboration of **GCF Country Programs**
  - ✓ By channeling **readiness funding** for capacity building
  - ✓ By advising the **accreditation of national entities** that aim to channel the Fund's resources

CCAP's APPROACH

Developing GCF Proposals

SECTORAL PROGRAM AND GCF PROPOSAL IDENTIFICATION



1. DEFINE DEVELOPMENT AND CLIMATE PRIORITIES

Global:

- UN Sustainable Development Agenda
- UN Millennium Development Goals
- UNFCCC Paris Agreement

Country level:

- Nationally Determined Contribution (NDC)
- National Low Carbon Development Strategies
- National Development Plans
- National Adaptation Plans

2. DIAGNOSE OF CURRENT WASTE SITUATION

Waste Hierarchy provides an internationally recognized guideline for thinking through sustainable waste management

- *How does your country focus on each of these?*

Source: Kāpiti Coast District Council

3. ANALYZE REGULATORY CONTEXT AND IDENTIFY POLICY OPTIONS

Policy Examples:

- **Minimization of waste generation**
- **Minimization of health** and **environmental risks**
- **Strengthening inclusive citizen participation**, environmental education and increased awareness regarding waste and / or waste management
- Promoting **treatment and use of waste** – waste as an **economic good**
- Promoting the **establishment of minimum standards for the management of waste** and/or waste in the generation
- Promoting **economic sustainability** through the establishment of a system of fees that covers all the net expenses of the management of non-hazardous solid residues of domestic origin

4. CONDUCT ECONOMIC, TECHNICAL AND POLICY RESEARCH

- Regulatory Analysis
- Technical Analysis
- Economic/ Financial Analysis

4.a Regulatory Analysis (1)

- A regulatory analysis is done by evaluating **current policy** (country's legislation) regarding waste management regulations

- In this analysis the objective is **to identify possible policy barriers and how to overcome them**

Example of policy barriers:

- New/alternative technologies are not eligible for competitive tariffs
- Alternatives to landfills are not supported in current policy framework
- Prohibition of burning non- hazardous waste as fuel
- Lack of implementation/enforcement capacity in government
- Volatile market for recyclables

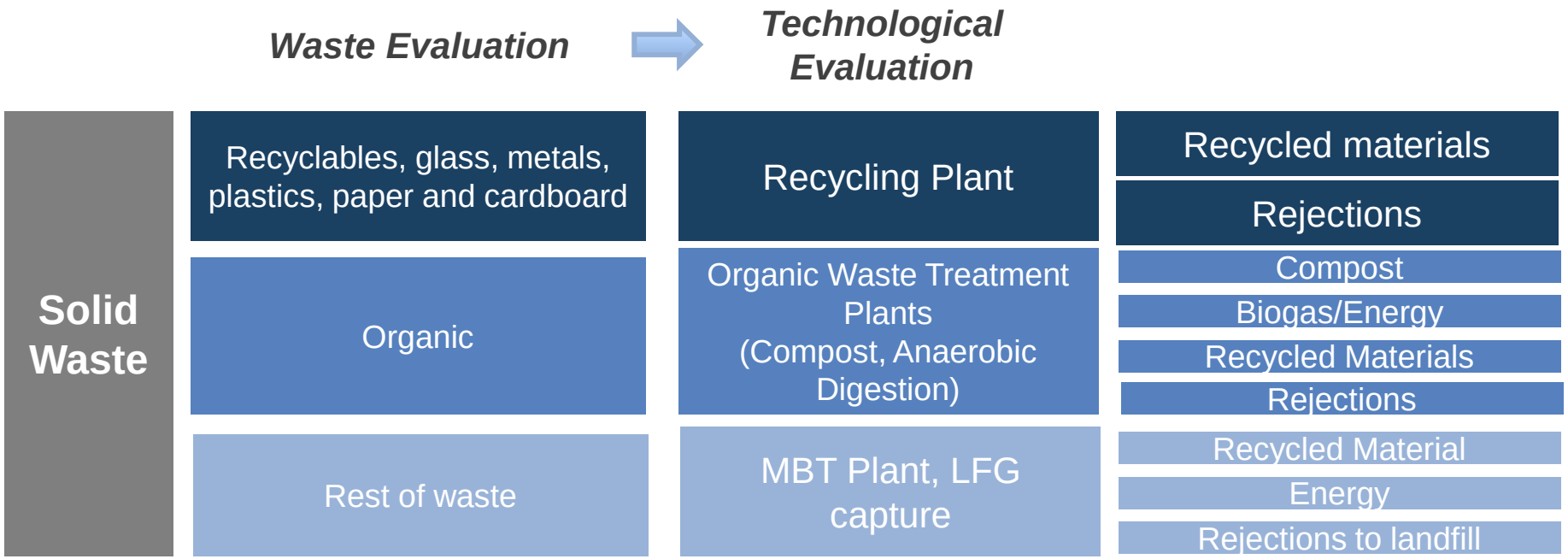
4.a Regulatory Analysis (2)

Once barriers are identified, solutions can be proposed, **some examples are**

- Institutional structure and authorities for waste management
- Public education initiatives
- Eliminate duties on recycling and composting
- Compliance mechanisms
  i.e. fines, penalties, tariff and tax incentives
- Finance mechanism for waste management activities
- Mandates
  i.e. waste sorting, closure of open dump sites
- Standards for sanitary landfills
- Incentives
  i.e. grants, subsidies, loans

4.b Technical Analysis

- Technical assessments are done by pre feasibility studies. These studies can have a high cost but are vital to identify which alternative technology is the best to pursue.

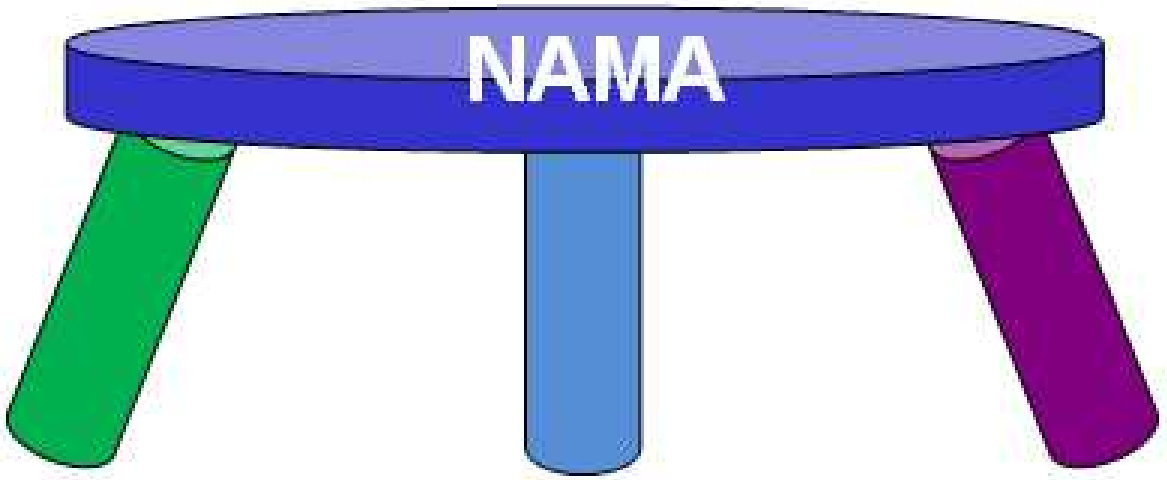


4.c Economic/Financial Analysis

- **Cash flow statement**
- **Return on Investment (ROI)**:
  - ✓ Payback period
  - ✓ Internal Rate of Return (IRR)
  - ✓ Net Present Value (NPV)
- **Sensitivity Analysis**

5. DEFINE POTENTIAL GCF PROPOSAL (1)

Eye Towards Making Projects Transformational



Policy/Regulatory Change: Improving policy and institutional frameworks

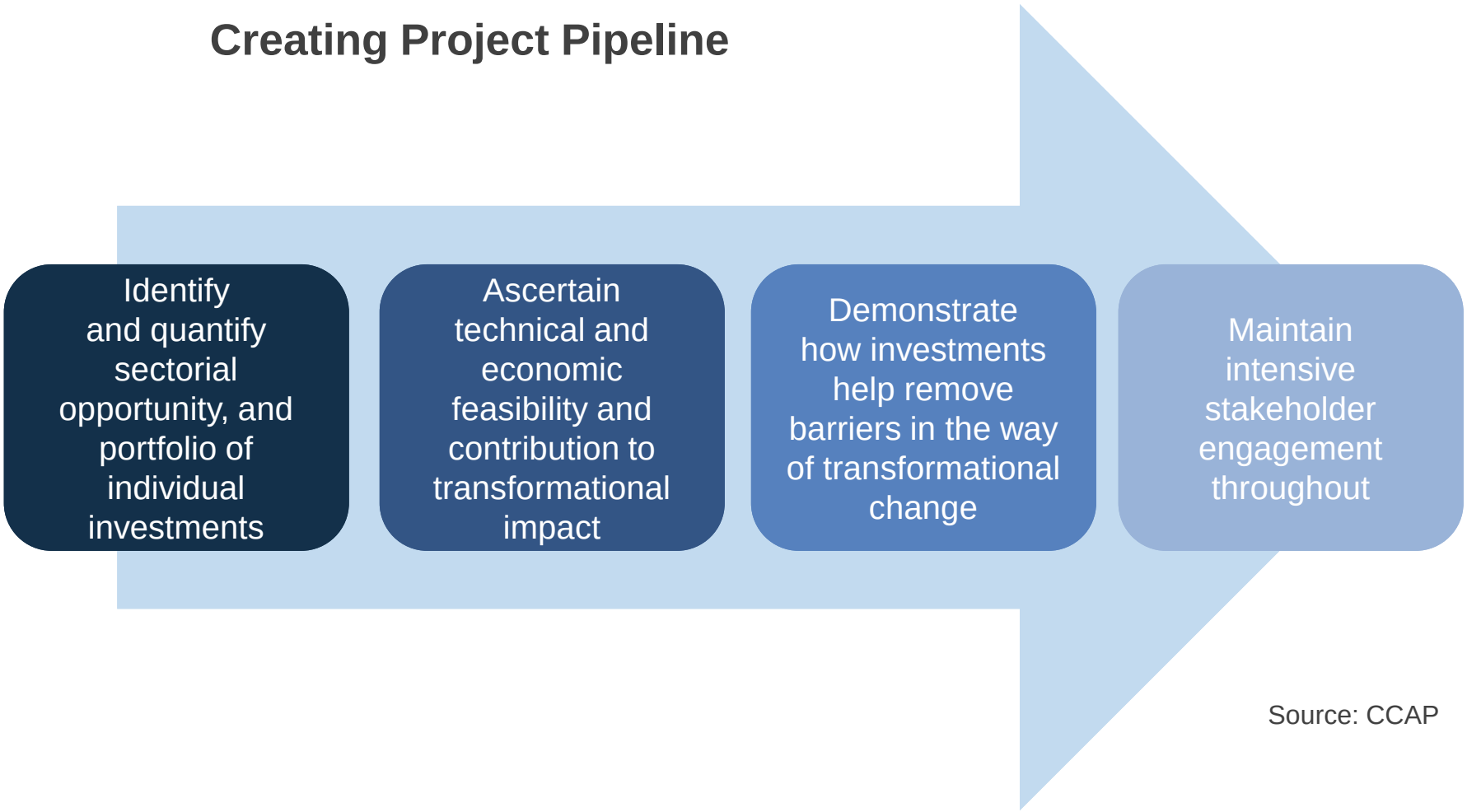
Financial Mechanism: Addressing financial risks and returns

Project Pipeline: Identifying potential projects and demonstrating feasibility

"The three legs of the stool define elements that make climate-friendly investments bankable." (CCAP)

5. DEFINE POTENTIAL GCF PROPOSAL (2)

Creating Project Pipeline



Source: CCAP

5. DEFINE POTENTIAL GCF PROPOSAL (3)

Pipeline development: How to identify projects?

- Cities with larger populations
- Political Will
- Demand side: industrial offtakers
- Supply side: Major organic producers
- Large volume of emissions
- International development sponsored projects

6. CONDUCT FEASIBILITY ANALYSIS

Project feasibility analysis for each project can include:

1. Detailed estimation of waste composition and waste sources
2. Evaluation of potential and locally appropriate sustainable waste projects
3. GHG baseline and mitigation scenarios
4. Project technical and economic/financial analysis
5. Business model development

7. DEVELOP FINANCING OPTIONS AND STRUCTURE (1)

Principles of Financial Mechanisms

- There are several overarching principles to consider when designing financial mechanisms:

- Effective financial mechanisms can catalyze additional investments from the private sector and lead to significant transformation in the target sector in reducing GHG emissions and achieving sustainable development goals.

7. DEVELOP FINANCING OPTIONS AND STRUCTURE (2)

Examples of Financial Mechanisms

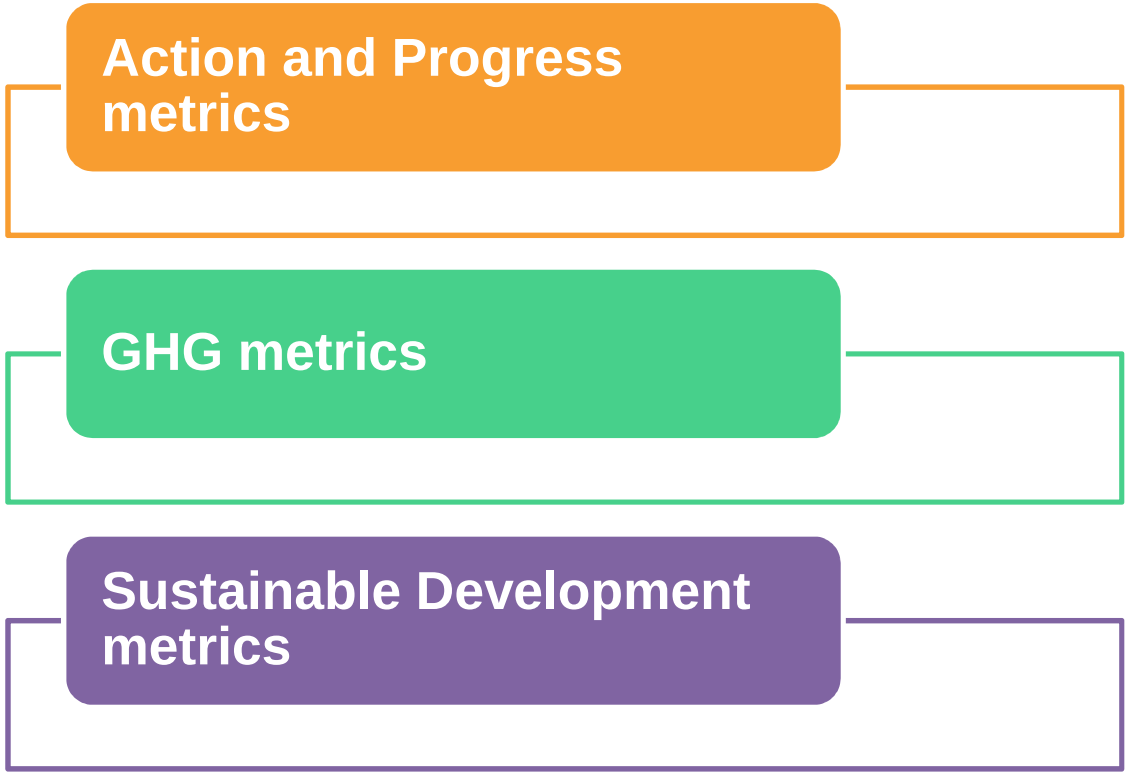
Financial Barriers	Financial Instrument
Perceived credit quality of borrowers or entering a new sector	Partial Credit Risk Guarantee
High Transaction Costs of Smaller Scale Projects	Creation of a Special Purpose Entity
Lack of Familiarity with Technology	Performance Guarantee
High interest rate environments and/ or lack of project revenues to cover market- terms of financing	Extension of lending maturities Soft Loans Revolving Fund Co- Financing
Lack of capacity in local banks	Special Funds
Project sponsor lacks necessary equity investment to mobilize commercial bank debt financing	Creation of Equity Fund capitalized with donor contributions

Source: CCAP

8. DEVELOP MRV PLAN

M&E Techniques and Metrics

- There are a number of metrics that can be used to measure how NAMAs support sustainable development



THROUGHOUT ALL THE PROCESS – STAKEHOLDER ENGAGEMENT, INPUT AND BUY-IN

Effective Stakeholder Engagement includes:

National Environmental Authority

i.e. Environmental Ministry, Federal Government

National Waste Regulatory Commission

Secretariat of Environment of Municipal District

Local Government- Majors, secretary, etc.

Large Waste Generators

i.e. Markets, hotels, restaurants, food producers

Small scale waste generators

i.e. homes

Private/Public Waste Management Companies

i.e. waste pickup companies, waste transport companies

Waste Worker Unions

i.e. informal waste pickers

Private Sector Associations

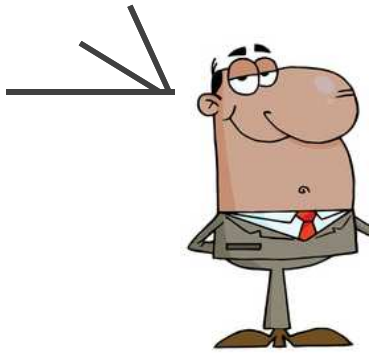
i.e. Commerce, Hotels

Small Scale Waste Managers

i.e. Recyclers

Waste Management Operators

i.e. Landfill Operators



Champion

CCAP's EXPERIENCE

A history of developing successful climate finance proposals

NAMAs DEVELOPED UNDER THE MAIN INITIATIVE

Waste Sector

- Colombia – National and municipal solid waste NAMA
- Peru – Supporting up-scaled mitigation action in Peru's solid waste sector NAMA
- Chile – Catalyzing Industrial Organic Waste Management NAMA

Transport Sector

- Colombia – Transit Oriented Development (TOD) NAMA

Energy Sector

- Chile – Renewable Energy Price Stabilization Fund NAMA
- Chile – Self-supply Renewable Energy NAMA
- Philippines – Support Project Enabling Distributed Solar NAMA
- Pakistan – Renewable Energy Distributed Generation NAMA

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DANISH MINISTRY OF CLIMATE, ENERGY AND BUILDING

WASTE MANAGEMENT NAMA IN COLOMBIA

Putting all this in practice in Latin America

OVERVIEW

Description of the Program

- As one of the fastest growing countries in Latin American, **the emissions** in the country **were expected to grow rapidly** under the business-as-usual scenario
- The NAMA supports the Colombian government in **transforming the solid waste sector** by overcoming various existing policy, financial, market and social barriers

The **cornerstones of the NAMA** are:

1. Regulatory changes and promotion of alternative waste treatment technologies
2. Creation of appropriate financial mechanisms
3. Development of Project Pipeline
4. Integration of informal recyclers into the formal sector

NAMA OBJECTIVE

- **Optimize economic value that is present in solid waste** streams through processes such as recycling, composting and conversion to energy
- Identify **policy barriers** and propose solutions to overcome them

- Institutional
- Financial
- Market
- Social

INSTITUTIONAL POLICY REFORM

Policy Barriers	Solution within the NAMA
New/alternative technologies are not eligible for competitive tariffs	Colombia created a regulatory framework that makes waste valorization viable. **Raised tariff and added an incentive for landfill alternatives.** **Article 88 of National Development Plan (2014-2018):** The territorial entities will receive an applicable recycling and treatment incentive if their PGIRS contains viable recycling and treatment projects.
Alternatives to landfills are not supported in current policy framework – Decree 1713	This decree limited the definition of public services for waste management to the core activities of street sweeping, collection, transport, and disposal, thus limiting the role of alternative treatment technologies. **The Decree was reformed to include alternative waste treatment technologies.**

INSTITUTIONAL POLICY REFORM

Policy Barriers	Solution within the NAMA
Prohibition of burning non-hazardous waste as fuel	Current regulation did not provide for the burning of non-hazardous waste (such as municipal solid waste) for productive purposes. **Decree 802** (May 2014): Authorizes non-hazardous waste to be used in cement furnaces.
Lack of capacity in government	**Capacity building in national and sub-national governments were included in the NAMA** to help regulate and monitor implementation of alternative technologies and processes. **PGIRS**: These Municipal Solid Waste Management Plans are mandatory for all municipalities (mandated by Resolution 754 of December 2014) and must be submitted to the National Government.

FINANCIAL POLICY REFORM

Financial Policy Barriers	Solution within the NAMA
Private sector reluctant to invest equity in new business models	Medium-to-high risk equity capital is required for projects such as MBT facilities. Due to the lack of track record and based on conversations with financiers it is apparent that equity capital is scarce or available at high return requirements (>20%). **The creation of an Equity Fund would overcome this barrier and will serve as** financial mechanism of the NAMA.
Past investments in landfill infrastructure	Solid waste operators had invested heavily in landfills based on the regulatory framework. Any changes to the framework threatened the current business model and investments of many large solid waste companies. The NAMA **prescribed the creation of Special Purpose Entities (SPE) and Public Private Partnerships (PPP)** to engage the private sector in developing alternatives to landfill disposal.

MARKET POLICY REFORM

Market Policy Barriers	Solution within the NAMA
Volatile market for recyclables and lack of developed market for compost	**Res. 754 - Methodology to Design Local or Regional Solid Waste Management Plans (Dec. 2014)** Guidelines about solid waste management municipality planning. **Makes mandatory for all municipalities to develop a composting process and design programs for recycling.**

SOCIAL POLICY REFORM

Social Policy Barriers	Solution within the NAMA
Informal waste pickers	Informal waste pickers collect over half of recycled materials yet work and live in poor conditions. Cities that form part of the NAMA will be encouraged to integrate informal workers into the projects. A stronger mandate is also being considered. **The integration of these workers will allow them to receive their fair share of income and benefits from the economic activity that is generated under the NAMA.**
Lack of awareness of citizens about benefits of recycling and source separation.	**National and city-level awareness and education programs will be designed** to promote separation at source that would allow production of high quality recyclables, compost and RDF. Such high quality commodities can receive higher value which would increase the financial viability of MBT plants.

FINANCIAL MECHANISM (1)

Issue: Higher perceived risk and shortage of affordable equity capital to **fund new technologies and business models**

Solution: Colombia Waste NAMA Equity Fund

Concessional equity financing to municipal utilities and private sector operators to implement first sustainable waste management projects

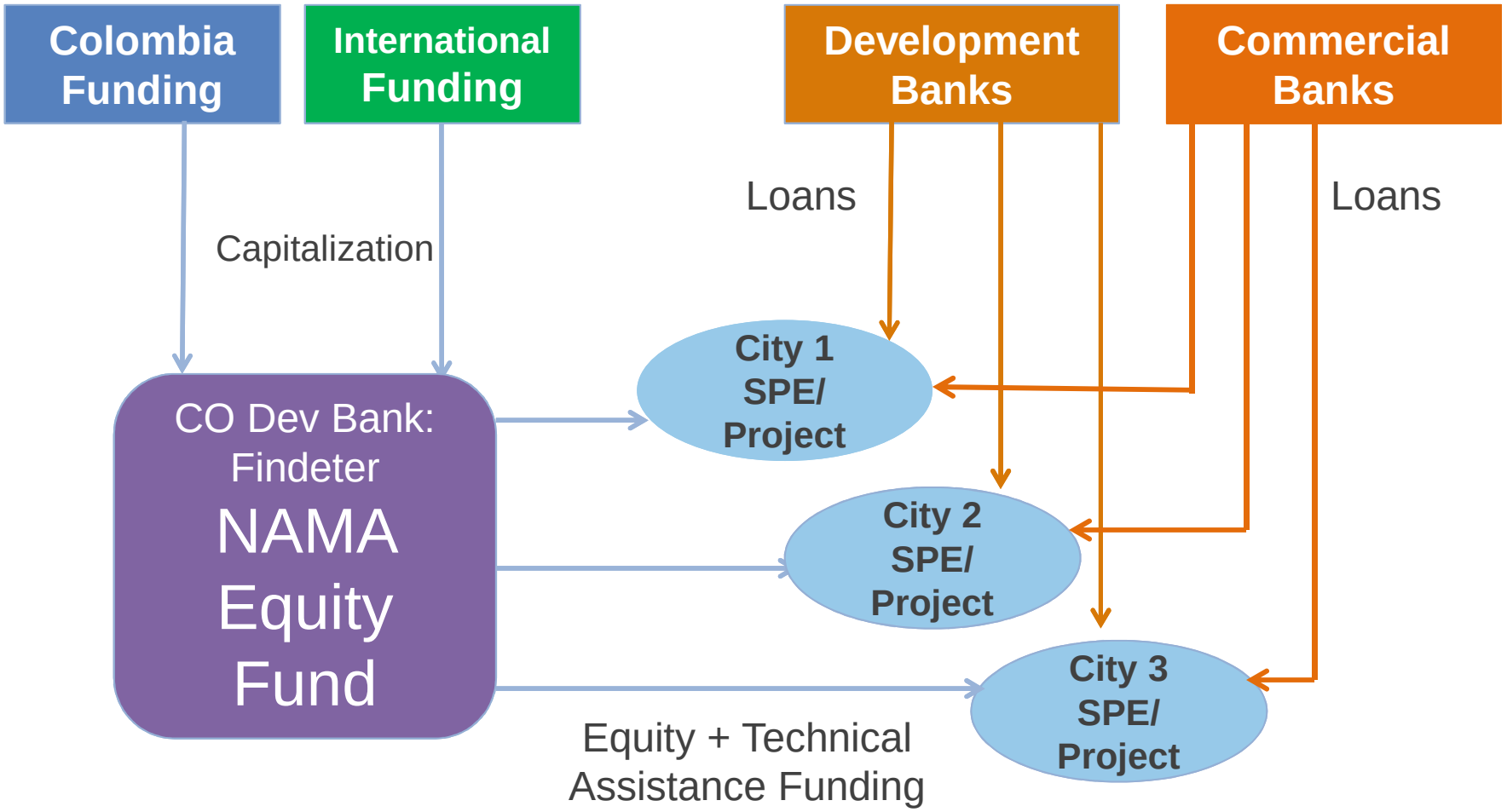
Mobilize and leverage additional private sector financing

Repayment of the equity investments would replenish the Fund and make it sustainable, allowing it to fund future projects

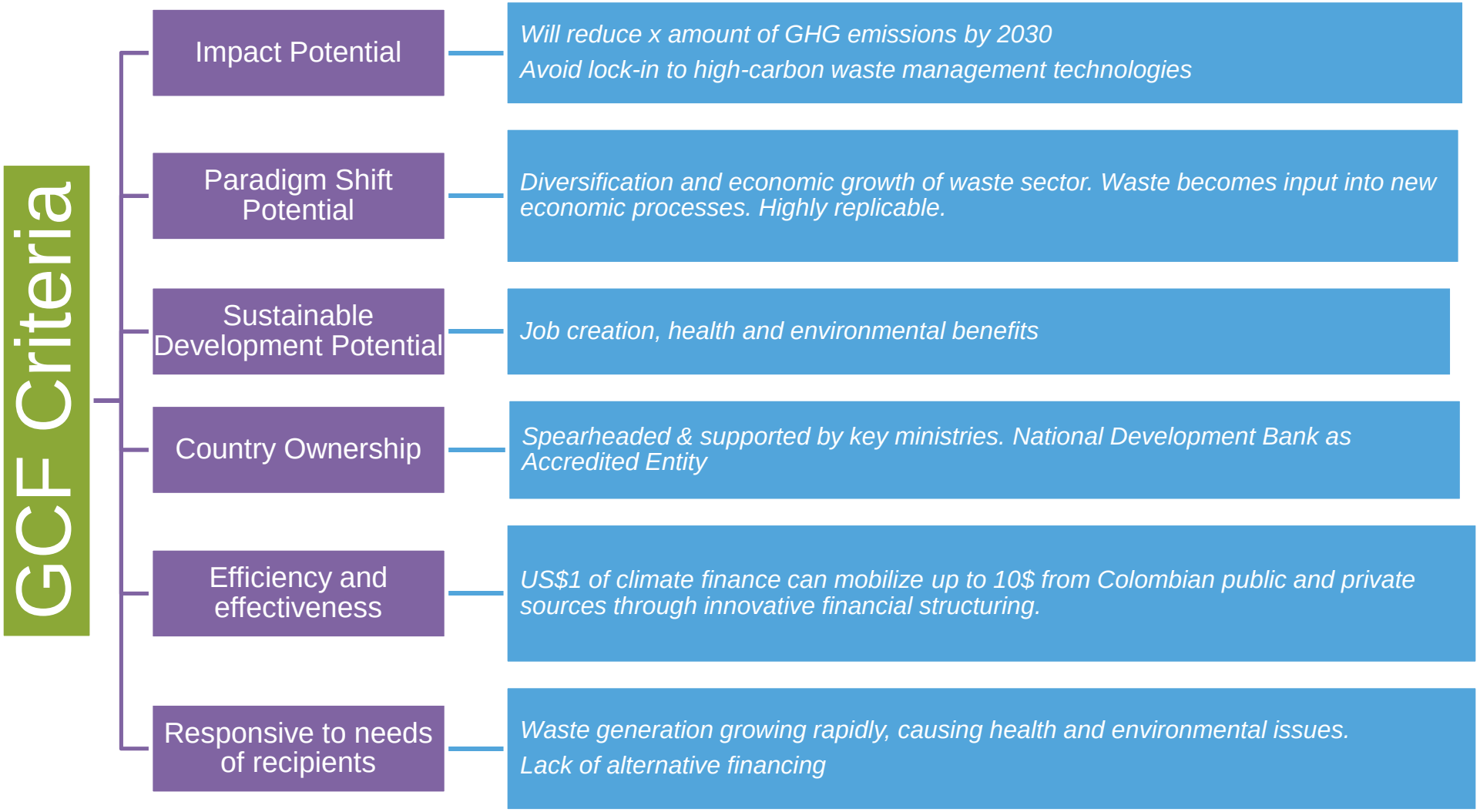
Reduced perceived risk and greater investment as familiarity with the technologies and business models increase

FINANCIAL MECHANISM (2)

Example Waste Projects Finance



COMPLYING WITH GCF CRITERIA



PUTTING IT ALL TOGETHER

Source: FINDETER

CCAP's WASTE PROJECT PORTFOLIO

Advancing the transformation of the waste sector

PROJECT PORTFOLIO

- Viña del Mar, Chile
- Puerto Varas, Chile
- Concepción, Chile
- Quito, Ecuador
- Bogotá, Colombia
- Arequipa, Peru
- Kenya

Viña del Mar, Chile

- **Population:** 334,248
- **Solid waste generation (tons/year):** 140,436
- **Organic waste treatment technology:**
- Anaerobic Digestion Plant
- **Finance Model:** Public-Private Partnership (PPP)
- **Project:** CCAP provided technical assistance to the municipality to assess different organic waste treatment technology options based on technical, financial, environmental, and social factors. The municipality decided to develop an anaerobic digestion plant through a public-private partnership and it is currently preparing the terms of reference to make a public call for proposals. It would be the first municipal anaerobic digestion plant in the country.

- **GHG emissions impact:**

	Cumulative Emissions (tCO2e)	Potential Emissions Reductions from Baseline (tCO2e)
Years	Baseline	Anaerobic Digestion Scenario
2020-2040	**500,918**	**-289,293**

- **Financial Indicators:**

Years	CAPEX (million US$)	NPV (million US$)	IRR
2020-2040	**10.0**	**10.8**	**14.53%**

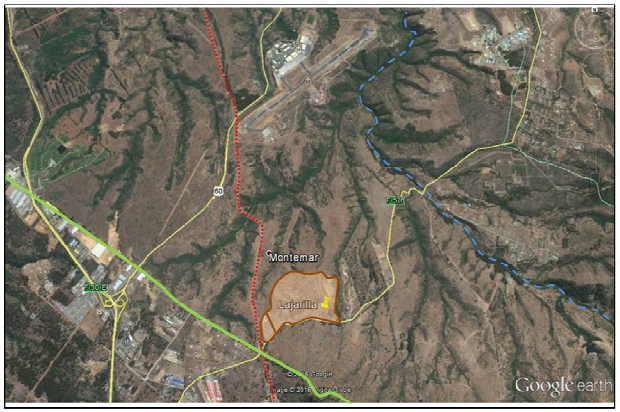
THE CASE FOR A PPP

For the Government:

- Large capital costs
- Lack of technical expertise in the public sector
- Large collection and disposal costs
- Landfill contract negotiations due in 2021
- Access to low cost compost/fertilizer/electricity

For the private sector:

- Expertise in the private sector, both international and local (although not with MSW).
- Flexibility in the contracts, allowing the intake of agro-industrial waste.
- Long term contracts.
- Availability of public land.



KEY LESSONS (1)

For identifying the right project:

- Focus on emission reductions from the start looking at what the major sources of organic waste are
- Try to ID as soon as possible what are the main sources of emissions in the city:
  - Landfill not collecting gas, outdated and/or inefficient transport, current use of waste, etc.

For accelerating project implementation:

- Find a trusted intermediary between public and private parties
- Engage large organic waste producers to ensure long term contracts that can “guarantee” the correct functioning of the plant

KEY LESSONS (2)

For finding the best financing options:

- Engage private sector early in the process
- Understand the main barriers to investment
- Usually they have already evaluated the regulations and tariff schemes preventing them from moving forward, and are familiar with the main barriers (e.g., guarantee for feedstock, regulations, environmental permitting, etc.)
- Capabilities and expertise may exist locally, even if they are not in the specific field.

NEXT STEPS

- **Replicate the model** around the country
  - After this experience all stakeholders will be better prepared to promote similar projects in other municipalities.
- Create a **new market for MSW management**

Upcoming Opportunities

- Canada-Chile collaboration underway, looking at 12 other municipalities to find the best way to deal with organic waste
- Test MRV approaches to consider the generation of ITMOs

Quito, Ecuador

- **Population:** 2.65 million
- **Solid waste generation (tons/year):** 709,267
- **Organic waste treatment technology:** Composting Plant
- **Finance Model:** 100% public vs PPP still being analyzed
- **Project:** CCAP is currently producing an implementation plan for a composting project that treats the organic waste of the city. It is expected that the compost will be used by the municipality in its green areas and for reforestation purposes, closing the loop to a circular economy in the city.

- **GHG emissions impact:**

	Cumulative Emissions (tCO2e)	Potential Emissions Reductions from Baseline (tCO2e)
Years	Baseline	Anaerobic Digestion Scenario
2020-2039	**12,263,149**	**-269,999**

- **Financial Indicators:**

Years	CAPEX (million US$)	NPV (million US$)	IRR
2020-2040	**3.57**	**1.9**	**15%**

Puerto Varas, Chile

- **Population:** 40,756
- **Solid waste generation (tons/year):** 122,171
- **Organic waste treatment technology:** Anaerobic Digestion Plant
- **Finance Model:** Private or PPP
- **Project:** CCAP is currently working with Puerto Varas to develop an implementation plan for an anaerobic digestion plant. CCAP is supporting the regionalization of this project, so it diverts from landfilling and treats organic waste not only from Puerto Varas, but also from the different municipalities in the region.

- **GHG emissions impact:**

	Cumulative Emissions (tCO2e)	Potential Emissions Reductions from Baseline (tCO2e)
Years	Baseline	Anaerobic Digestion Scenario
2020-2039	**2,227,211**	**-811,389**

- **Financial Indicators:**

Years	CAPEX (million US$)	NPV (million US$)	IRR
2020-2040	**5.68**	**0.97**	**12%**

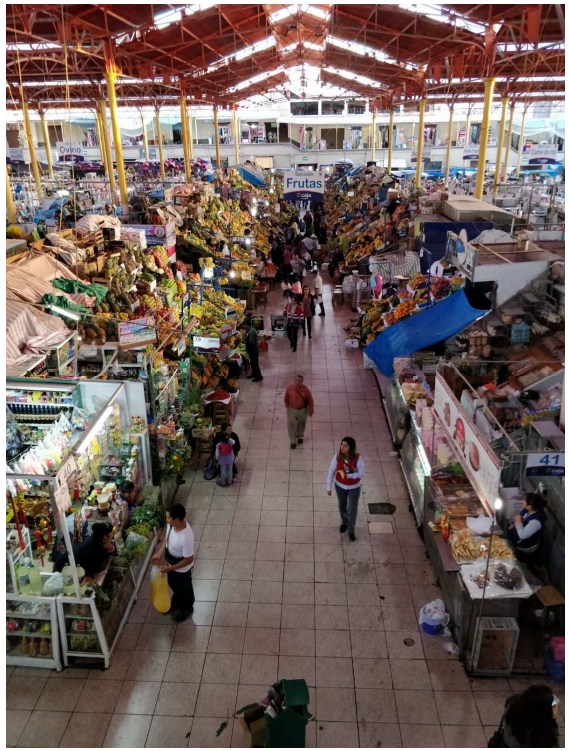
Bogotá, Colombia

- **Population:** 8.08 million
- **Solid waste generation (tons/year):** 3.22 million
- **Organic waste treatment technology:** Composting Plant
- **Finance Model:** Public funding (incl. new incentive scheme)

- **Project:** Bogota's landfill is reaching its capacity limit and the city has already faced several waste-related crises. CCAP is developing a financial work plan, risk assessment and mitigation plan that enables the city to implement a compost plant to divert organic waste from landfilling while producing compost. As part of this work, CCAP will help identify and connect the projects with national and international financing options to increase ambition.

Arequipa, Perú

- **Population:** 1.04 million
- **Solid waste generation (tons/year):** 268,673
- **Organic waste treatment technology:** Composting Plant
- **Finance Model:** Private or PPP
- **Project:** Arequipa is interested in a composting plant for the treatment of organic waste, but it lacks the necessary technical capacity. CCAP will assist the municipality by developing a financial work plan that leads to a competitive public concession or public-private agreement to build and operate the compost plant.



Kenya

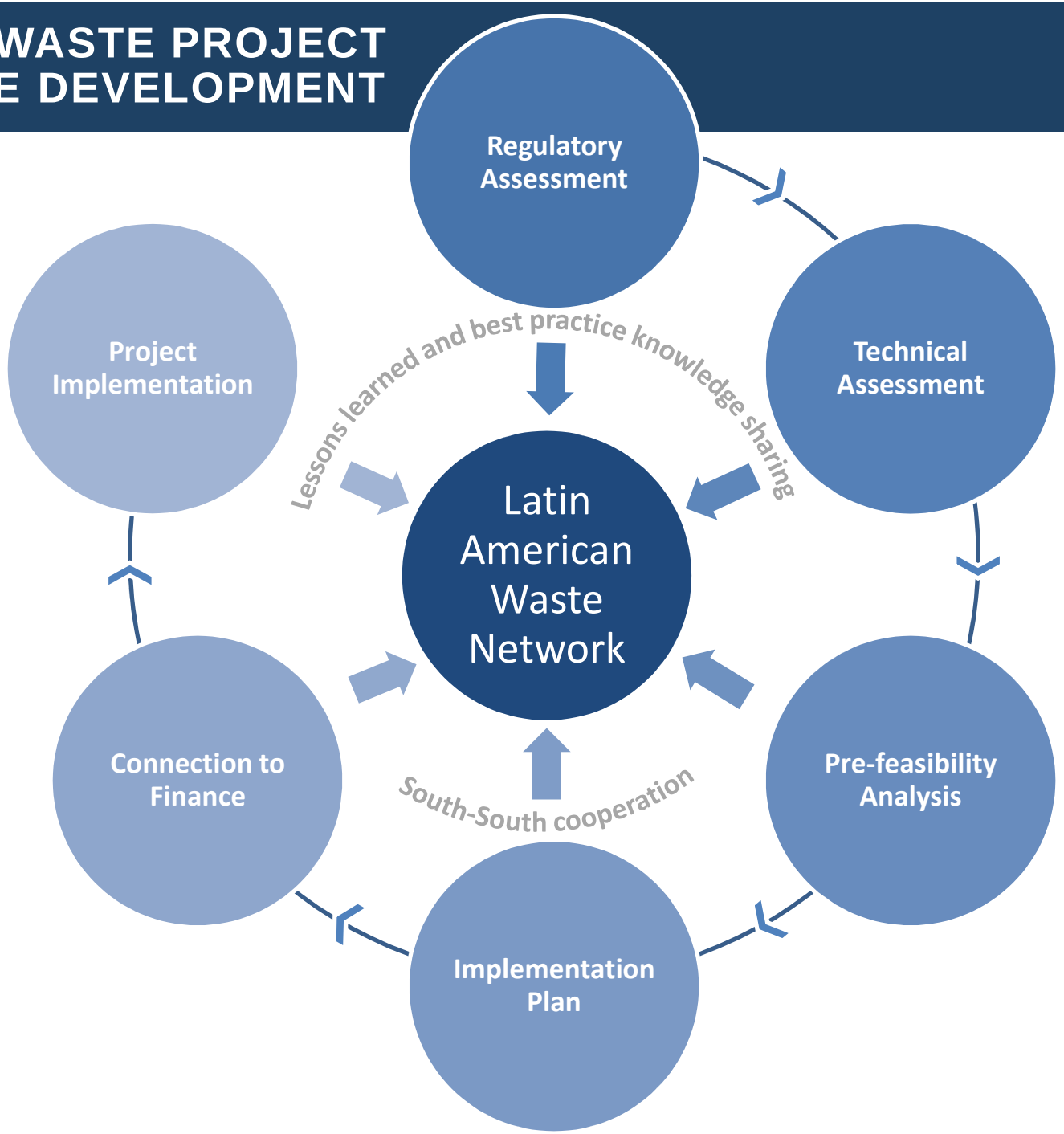
Project: promoting a circular economy Solid Waste Management approach in Kenya

- Technical and legal assistance to the government of Kenya to **develop a national legal framework that creates an enabling environment for sustainable SWM** in Kenya
  - National SWM Law
  - Model county SWM regulation to complement the national SWM Law and accelerate county adoption and implementation
  - Roadmap for implementation of Kenya's National SW
- Assistance to **one pilot county to accelerate implementation** of SWM actions
  - County SWM Act
  - Case study on technical support to develop waste regulation and accelerate project implementation

ADVANCING TOWARDS IMPLEMENTATION IN LATIN AMERICA

Developing a project pipeline and funding for implementation

CCAP's WASTE PROJECT PIPELINE DEVELOPMENT



FUNDING FOR PROJECT IMPLEMENTATION

- CCAP is currently working on-the-ground with cities and countries across Latin America **to implement sustainable waste management project**

- Existing and growing project pipeline in Latin America

- **Goal/Next step:** create a **regional finance facility** to fund project implementation

THANK YOU

For more information,
please visit us at
www.ccap.org

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