CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

Solid Waste Financing

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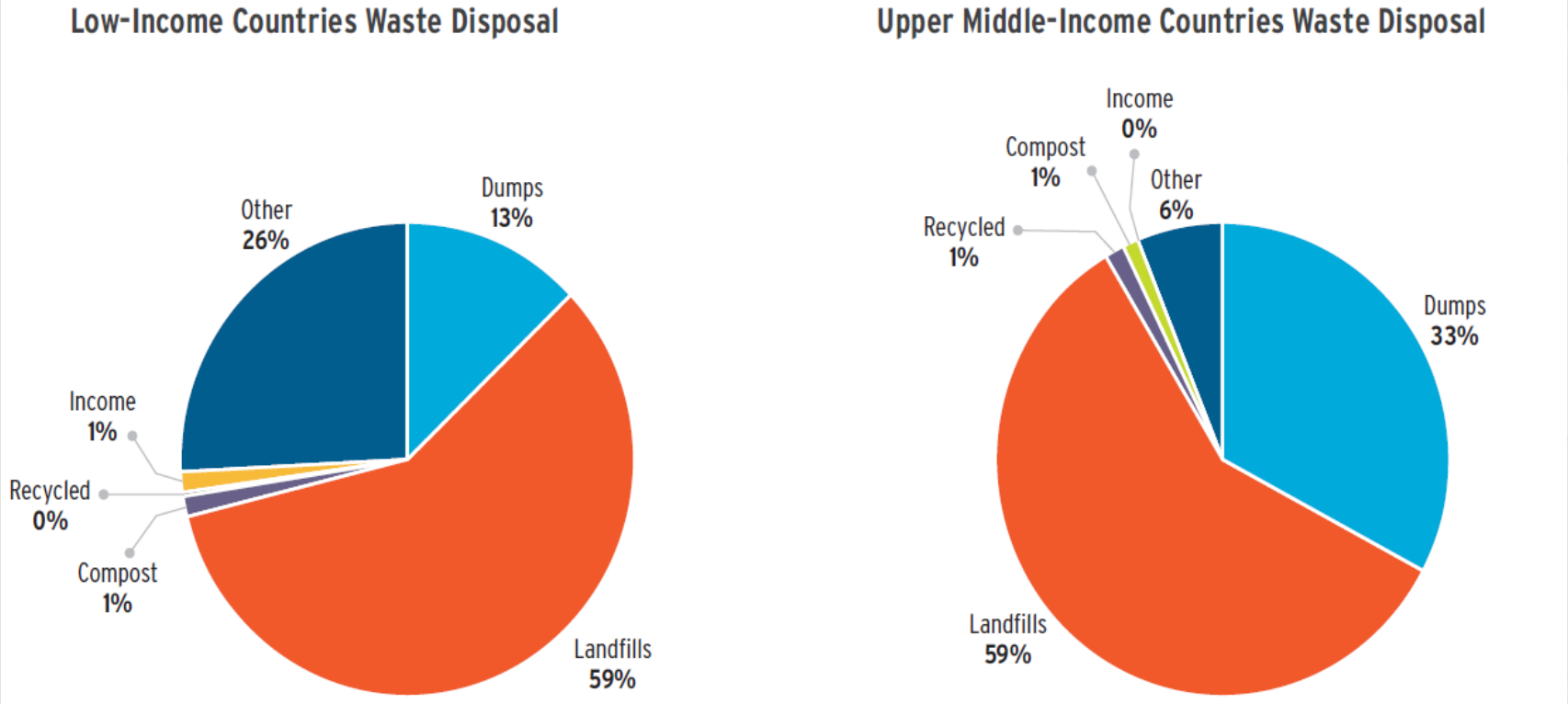
Outline

- Solid Waste Management Overview
- Financing Solid Waste Management
- Climate and Clean Air Coalition Municipal Solid Waste Initiative

1 Solid Waste Management Overview

Overview of Solid Waste

- In 2012, the worlds' cities generated **1.3 billion tons** of solid waste per year, amounting to a footprint of 1.2 kilograms per person per day.
- With rapid population growth and urbanization, municipal waste generation is expected to rise to 2.2 billion tons by 2025.



Source: World Bank

Overview of Solid Waste

MSW generation rates are influenced by: economic development, degree of industrialization, public habits and local climate

Source: Waste Atlas Partnership (2014).
Waste Atlas: The World's 50 Biggest Dumpsites, 2014 Report.

SWM Challenges

In low and middle-income countries, waste is often disposed in unregulated dumps or openly burned.

Health, Safety, and Environmental

- Breeding ground for disease vectors
- Contributes to global climate change through methane generation
- Promotes urban violence

Financial Challenge

- Globally, SWM costs will increase from $205 Bn (2016) to $375 Bn (2025). Cost increases will be most severe in low income countries (5x) and lower-middle income countries (4x).
- Effective waste management is expensive (20-50% of municipal budgets).
- Operating this essential municipal service requires integrated systems that are efficient, sustainable, and socially supported.

Mitigating Emissions from the Waste Sector Results in Numerous Benefits for the Community

Challenges

- Black carbon emissions from vehicles and equipment
- Black carbon emissions from open burning and landfill and dump fires
- Methane emissions from landfills and dumps

Solutions

- Efficient waste collection, transport, and handling
- Preventing waste burning
- Organic waste management
- Landfill gas capture

Benefits

ENVIRONMENTAL

- Climate change mitigation
- Air quality protection
- Water quality protection
- Litter reduction

SOCIAL

- Improved public health
- Worker protection
- Improved welfare of the informal sector
- Improved aesthetics

ECONOMIC

- Job creation
- Resource conservation
- Costs reduction
- Energy generation

Learn how the Climate and Clean Air Coalition is helping cities reduce short-lived climate pollutant emissions from the municipal solid waste sector:

http://www.ccacoalition.org/en/initiatives/waste

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2 Financing Solid Waste Management projects

Financing the SWM Value Chain

SWM projects can be financed from value chain for upstream industry/populations to downstream disposal and energy utilization

- SWM planning & capacity building
- Reduce, reuse, recycling
- Sustainable, EE process optimization

- Waste collection
- Transfer station
- Transport – Truck & Rail

- Waste separation
- Recycling
- Composting
- Refuse Derived Fuel

- Landfills
- Incineration
- Sell/utilize recyclables
- Compost

- Waste to Energy
- Anaerobic Digestion,
- Biogas to Energy
- Biomass to energy

Building Efficiency in SWM

- **Improving solid waste service delivery and fee collection**
  - Appropriate model for lower income countries where service delivery is poor or non-existent and where fee collection to support waste collection and disposal is a major challenge.
  - Helpful model to jump start solid waste services in fragile and post-conflict situations where the private sector may be reluctant to enter.
  - Example cities include in Nepal and the West Bank

Building Efficiency in SWM

- **Promoting source separation and recycling**
  - In middle income countries where municipal solid waste collection rates are already high, government tends to focus on improving the financial and environmental sustainability of the sector.
  - RBF can be used to design projects that provide incentives to households for waste separation and recycling.
  - Example countries include like China, Malaysia or Indonesia

Building Efficiency in SWM

- **Strengthening waste collection and transport in under-served communities**
  - This model is applicable to both low and middle income cities but is most relevant where the focus is to improve services in under-served and low income communities
  - These project designs could be integrated into community and slum upgrading projects.
  - Example cities include Tanzania, Jamaica and Mali

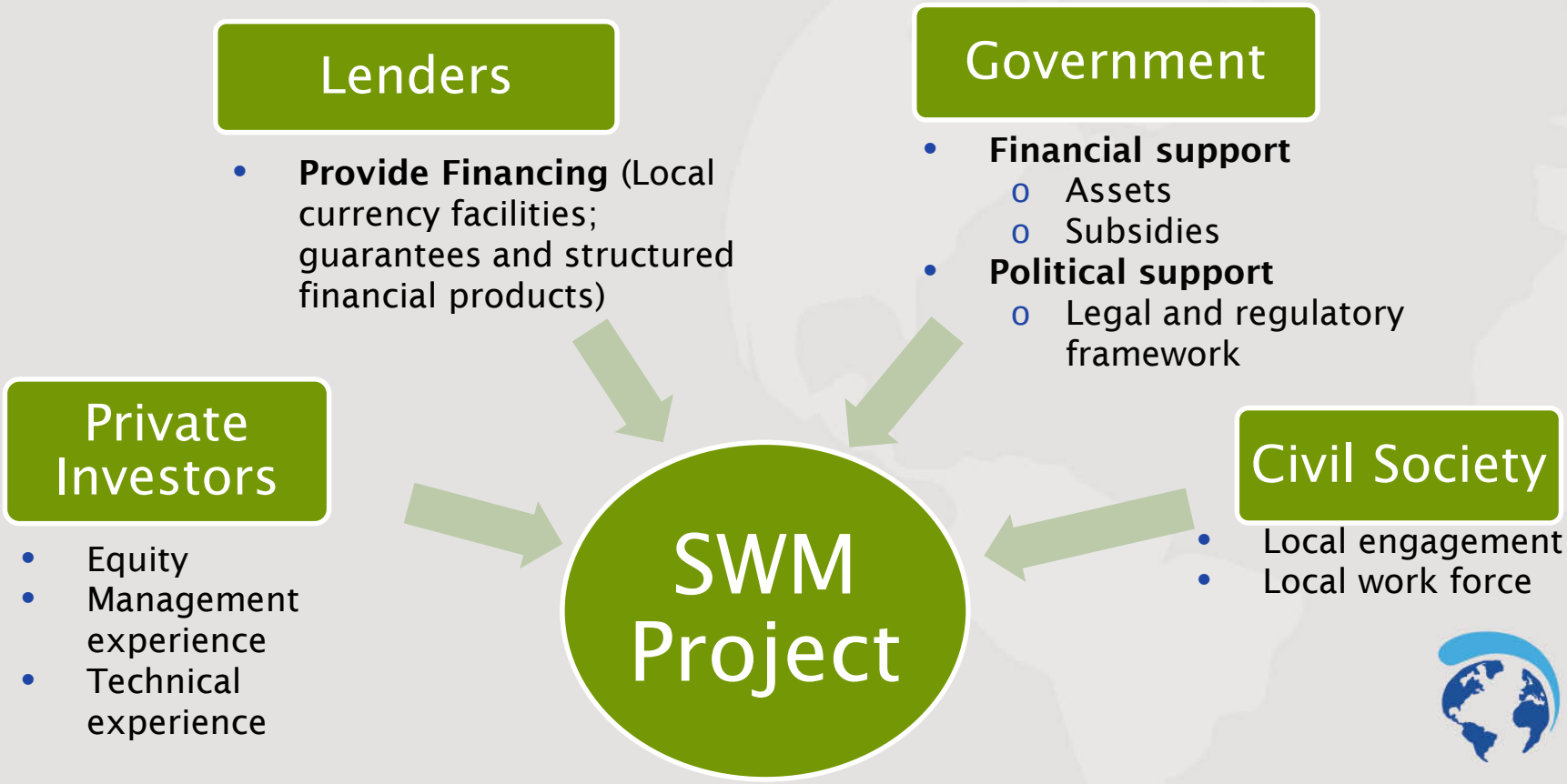
Financial Readiness

Key considerations to prepare for financial readiness of a waste management project:

- **Infrastructure:** build or upgrade waste sorting and treatment facilities, close dumps, construct or refurbish landfills, and provide bins, dumpsters, trucks, and transfer stations.
- **Legal structures and institutions**:
  - National and or local policies
  - Regulations on proper disposal
    - MSW is often mixed with medical and/or hazardous waste
    - Lack of local capacity to develop proper disposal regulations
  - Regulation enforcement
  - Local capacity or education
  - Funds to enforce regulations
  - Public awareness
  - Behavior change and public participation
- **Social inclusion:** formal jobs for waste picker (safety, social safety nets, child labor restrictions and education)
- **Financial sustainability**: Taxes and fee structures
- **Health and safety**: Improve public health and livelihoods by reducing open burning, mitigating pest and disease vector spread.

Public-Private Partnerships – Shared Responsibility

SWM projects need to engage public and private sectors and civil society for risk sharing, transparency and economically and financially successful structures



Financing alternatives for SWM projects

Public Financing – Four ways of financing local public goods:

1. Local taxes
2. User charges which are levied on various urban services
3. Grants from higher levels of government (Central, State Governments)
4. Raising funds through Capital Market, from Government/Financial Institutions or international agencies

Traditional loans

- Bilateral and multilateral development banks
- ECAs
- International and local government and commercial banks

Financial Alternatives

Results-based financing: payments are tied to results

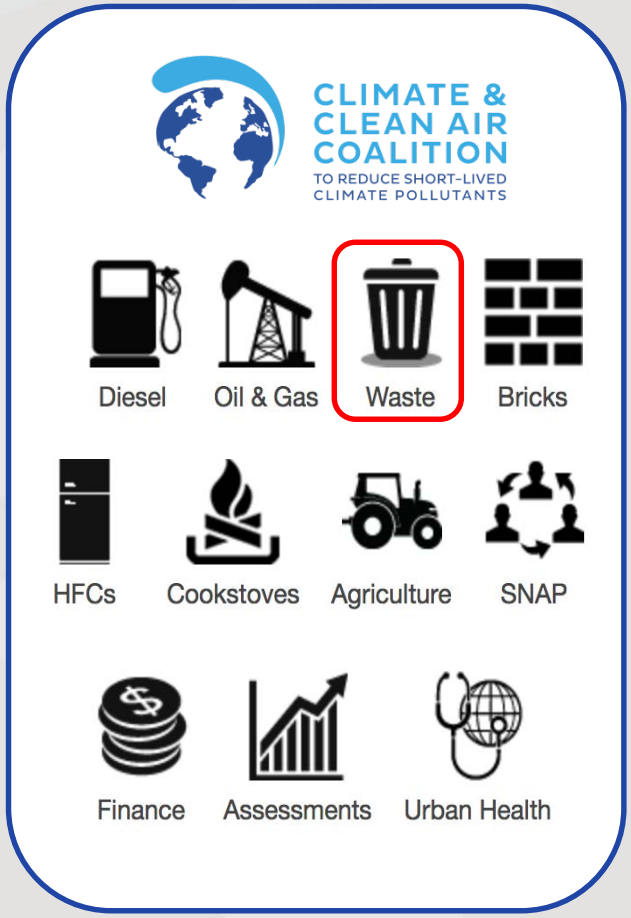
- Fee collection and behavior change toward recycling and source separation of organic waste;
- Access to basic services for the poor and reducing the adverse impact of uncollected or inappropriately disposed waste among low income residents;
- Transparency and accountability in the use of public funds through an independent verification process.

Development policy financing: technical assistance and loan through PPP mechanism

3 CCAC MSW Initiative

Climate and Clean Air Coalition Municipal Solid Waste Initiative

- Focused on addressing SLCPs from waste sector at the local level
- Types of assistance
  - Technical assistance (e.g., waste characterization, landfill gas assessments)
  - Capacity building (e.g., trainings)
  - Networking and information sharing
  - Assistance in identifying and securing financing for projects



Readiness: Toolkit for Finance

Stage	Activities/Outputs
1 – City Assessment	• Data collection • City assessment form
2 – Technical Work plan	• Technical work plan • Technical studies (e.g., waste characterization studies) • Capacity building trainings (e.g., landfill operations)
3 – Financial Work plan	• **Evaluation of financial readiness and potential risks** • Financial work plan • Studies (e.g., identifying financing opportunities) • Trainings (e.g., procurement)
4 – Ready to Launch	• Preparing proposals • Reviewing and finalizing contracts

Financial Readiness Evaluation

Category	Example Evaluation Question
Political Environment	• How long is the current government's term? Does the project need to be completed within that timeframe?
Regulatory Environment	• How does this project align or conflict with existing regulations (e.g., public health regulations)?
Legal Framework	• Are there laws that determine how a project must be structured?
Revenue Streams	• Will anticipated revenue streams go to the general fund, or can they be used for other waste projects?
Financial and Technical Expertise	• Does the city have the in-house capacity it needs (e.g., for modeling project economics)?
Bidding	• What are the local procurement policies and procedure? How do they apply to this project?

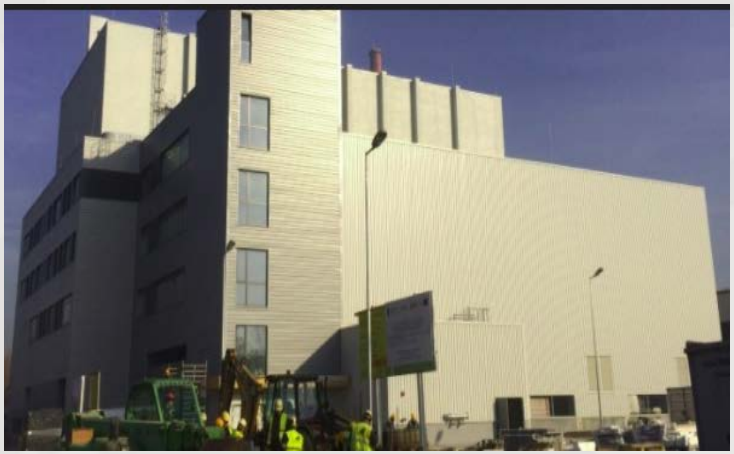
Objectives of Financial Readiness Evaluation toolkit

- Raises awareness of challenges and potential pitfalls
- Helps cities identify gaps or areas of potential risks
- Goal is to help cities advance to Stage 4, which is focused on actually securing financing

Public Private Partnerships

Poland Poznań WTE PPP and SUEZ

- WTE facility opened in March, 2017
- The facility reduces landfilled and dumped waste into electricity and district heating
  - 30% of the domestic energy is supplied by this facility
- The parties involved included the company SUEZ, the Marguerite Fund, the European Fund for Energy, Climate Change and Infrastructure, and the City of Poznań
  - 84 million Euros was financed from a European subsidy and 96 million euros from a non-recourse loan
  - SUEZ signed a 25 year contract with the City of Poznań



Source: Marguerite Fund

Source: https://pppknowledgelab.org/sectors/waste

Thank you! Questions?

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