Options and methodologies for developing baselines

Regional workshop on Nationally Appropriate Mitigation Actions

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Objectives

Baselines an Introduction

Steps for Baselines

Approaches to Baseline Setting

RCC Support

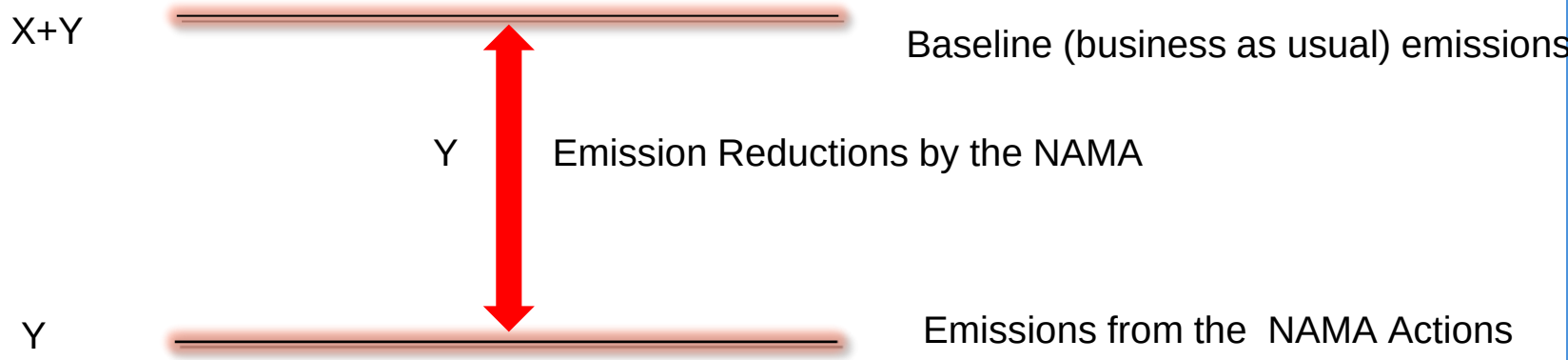
Objectives

Baselines an Introduction

WHAT IS A BASE LINE ?

WHY WE NEED BASELINES FOR NAMAS?

Baseline



Baseline scenario may intended to be a "business as usual" projection, or can represent other scenarios referring to emission reduction targets and be based on different assumptions or conditions.

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Baseline

Baseline scenario:

A scenario that describes future greenhouse-gas emissions levels in the absence of future, additional mitigation efforts and policies. The term is often used interchangeably with business-as usual scenario and reference scenario.

Transparency

National and international credibility regarding the baseline are acknowledged as key concerns.

- Nationally, credibility ensures credible national policy planning

- Internationally, credibility ensures acknowledgement for mitigation pledge and efforts.

**Source: Danish Energy Agency 2014*

WHAT ? Baseline

Baselines take into account all UNFCCC gases (CO2, CH4, N2O, SF6, PFCs, HFCs +, NF3) and use the GWP established by the IPCC.

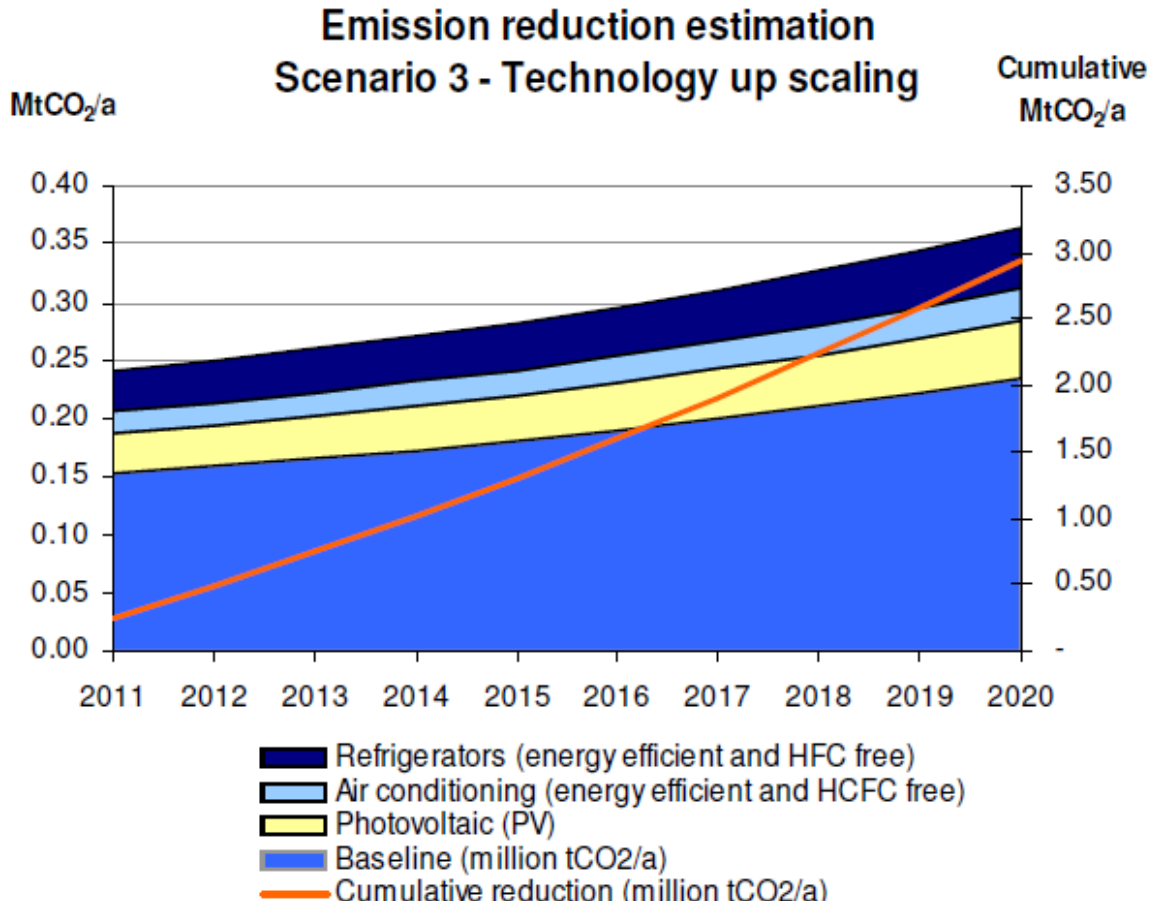
Depending on its purpose and the scope of information used for its development,
a baseline can be defined on a project, sectoral, policy, sub national, inter sectoral or national level.

There are no international requirements nor internationally recognized guidelines for the construction of a baseline

Methodology to be chosen based on the desired level of detail, availability of data and technical expertise.(for internationally supported ??)

WHAT ? Baseline

Ėfficiency Measures in the Mexican Residential Building Sector



*Source : Point Carbon/perspectives 2010

WHY? Baseline

- Estimate emission levels and mitigation potential in a Sector or area
- Prioritize a NAMA based on Potential for mitigation
- For support organizations(finance, technology, capacity building) to get an idea of impact

Objectives

Steps for Baselines

HOW? Baseline

- Step 1: Identify the appropriate Baseline approach/es for the NAMA
- Step 2: Define the coverage, scope, and time period of the baseline
- Step 3: Identify the data requirements based on level of accuracy
- Step 4: Identify appropriate metrics for quantifying baseline GHG emissions
- Step 5: Investigate the data availability and data collection plans
- Step 6: Collect the data and develop the baseline
- Step 7: Conduct QA/QC assessments
- Step 7: Revision of the baseline

Some of the challenges with data collection

Difficult to find data sources	Not easily available online, need on the ground contacts, data may be split between different ministries (e.g. biomass data may be located in both Ministry of Energy and Ministry of Forestry)
Data is often inconsistent	Kilogram per person consumption of wood may be different in every different report
Data is often out of date	Forestry reports in many countries are often from 10 – 15 years ago
Data is often available at an aggregated level inappropriate for the SB	Charcoal and wood consumption may be very different in different regions such as urban vs rural areas or wet vs dry regions
Industrial sector data is often highly confidential	Cement or iron & steel data is not easily accessible
Minimum services level	Difficulty to determine appropriate level

**Source: Perspectives 2013*

Objectives

Approaches to Baseline Setting

Approaches to Baseline setting

Status quo Simply drawing a flat line from existing historical emissions

Control group method – benchmark of use patterns and energy performance of technologies - is very country specific

Approaches to Baseline setting

Dynamic baselines to accommodate fast moving changes in technologies that could potentially save energy and should be factored into MRV. The failure to build these changes into baselines will lead to significant overestimates in emissions.

Futuristic emission assumed continuation of historical emissions (project i.e same level as before without linking to intensity ,emission profile of historic trend);continued rate of growth of emissions / emissions intensity (sector based on GDP to that of the emissions, hypothetical); modeling based on policies (current and expected policies) included in the baseline

Rebound effects. Rebounds occur when energy efficient improvements in technologies result in greater usage rate, effectively offsetting emission reductions. This is likely to accompany shifts to more consumer oriented lifestyles. (A ton save is not saved but used elsewhere)

Project and Standardised Baseline Approach

The baseline for a CDM project activity

The baseline for a CDM project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity (3/CMP.1, Annex, paragraph 44)

Standardised Baelines in development

1. *Charcoal production*
2. *Grid connected energy*
3. *Rural electrification*
4. *Charcoal production*
5. *Cook stove sector (institutional/Household)*
6. *Forestry Sector*
7. *Solid waste (LFG)*
8. *Liquid waste (industrial effluent)*
9. *Cement (Clinker Production)*
10. *Waste water*
11. *Transport*

- –Fraction of non-renewable biomass (fNRB)
- *-GEF calculations*

Metrics Approach

Baseline Metrics

- Baseline metrics to comprise of a set of indicators (observed in a reference year and measurable in coming years)
- Tracking the indicators overtime indicates the progress and helps to estimate impact on GHG emissions
- Flexibility in the choice of indicators of baseline metrics

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Kazakhstan's Urban NAMAs *are defined as the appropriate municipal institutional and financial framework and investment, which will enable Kazakh cities to set-up, reach and monitor their city-wide emission reduction targets, as part of national commitment to reduce Kazakhstan's emission by 15% below 1990 emissions.*

Baseline	Proposed indicators of progress*
• **National and sectoral inventories and GHG emission targets**	• City-wide GHG emission targets and inventories for 15 main cities
• **Establishment and capacity building of Municipal Management Companies (MMCs), business planning and development of investment portfolio**	• Capacity building of MMCs to identify and implement low-carbon projects, preparation of bankable emission reduction projects
• **Establishment and capitalization of NFUM**	• Additional funding window within NFUM specifically for emission reduction projects prioritized in urban NAMAs
• **Complex modernization of district "Prigorodonoye" in the capital of Astana**	• Implementation of additional measures to reduce district emissions by 50% below baseline requirements under NMP
• **ETS covering large industrial emitters, national registry and MRV**	• Registry and MRV for urban NAMAs • Rules and regulations providing for "linking" credited urban NAMAs and domestic ETS • Signed ERPA between ETS entities and municipalities

**Source: GEF supported NAMAs/TERI*

GHG Inventory Approach

GHG emissions inventory as a baseline for absolute reductions

- comparison of reference year inventory with target year inventory
- actions are not measured but the result (GHG emissions reductions)
- existing experience of preparing inventories for National communications

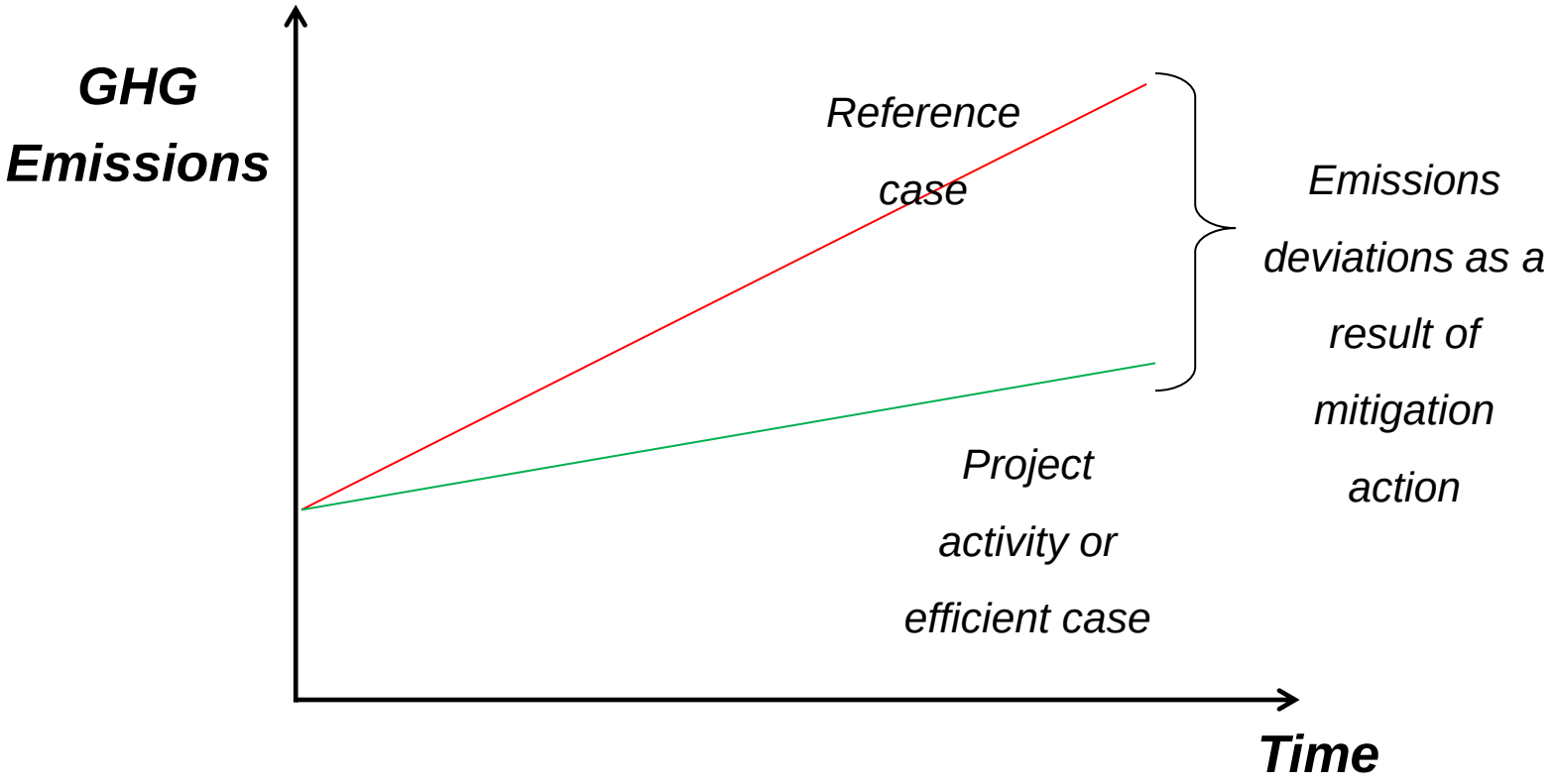
*Source: TERI 2014

Reference Case Approach

- According to IPCC AR 4, “business-as-usual” baseline/reference case assumes that future development trends follow those of the past and no changes in policies will take place
- Impact on GHG emissions is equivalent to deviations from the reference case
- Defining reference case projecting a probable emission trajectory by selecting an appropriate model for economy (set of policies and barriers; set of assumptions for future development and growth)

A key issue when constructing baseline scenarios is whether or not to include the effects of pre-existing or planned emissions abatement policy in the baseline, their economic lifetime, macroeconomic and socio-demographic indicators , policy implications

Reference Case Approach



*Source: TERI 2014

Hypothetical Example

Overall goal: Development of a low carbon urban transport system

Specific activities:

1. Development of efficient public modes of transport like BRTS
2. Development of infrastructure for Non-motorized vehicles
3. Change in Fuel use: electric vehicles, natural gas, bio-fuel
4. Switching to efficient technology for motorized vehicles
5. Retrofitting XYZ rail system with more efficient XYZ technology
6. Conducting awareness-raising campaigns to promote low carbon urban transport

Key Characteristics:

a) Overall sectoral goal: directional and non-quantifiable

b) List of specific policies, programs and projects (mix of directional, quantifiable) contribute to the overall sectoral goal

c) Many activities lead to indirect GHG benefits, sectoral GHG inventory might not be suitable

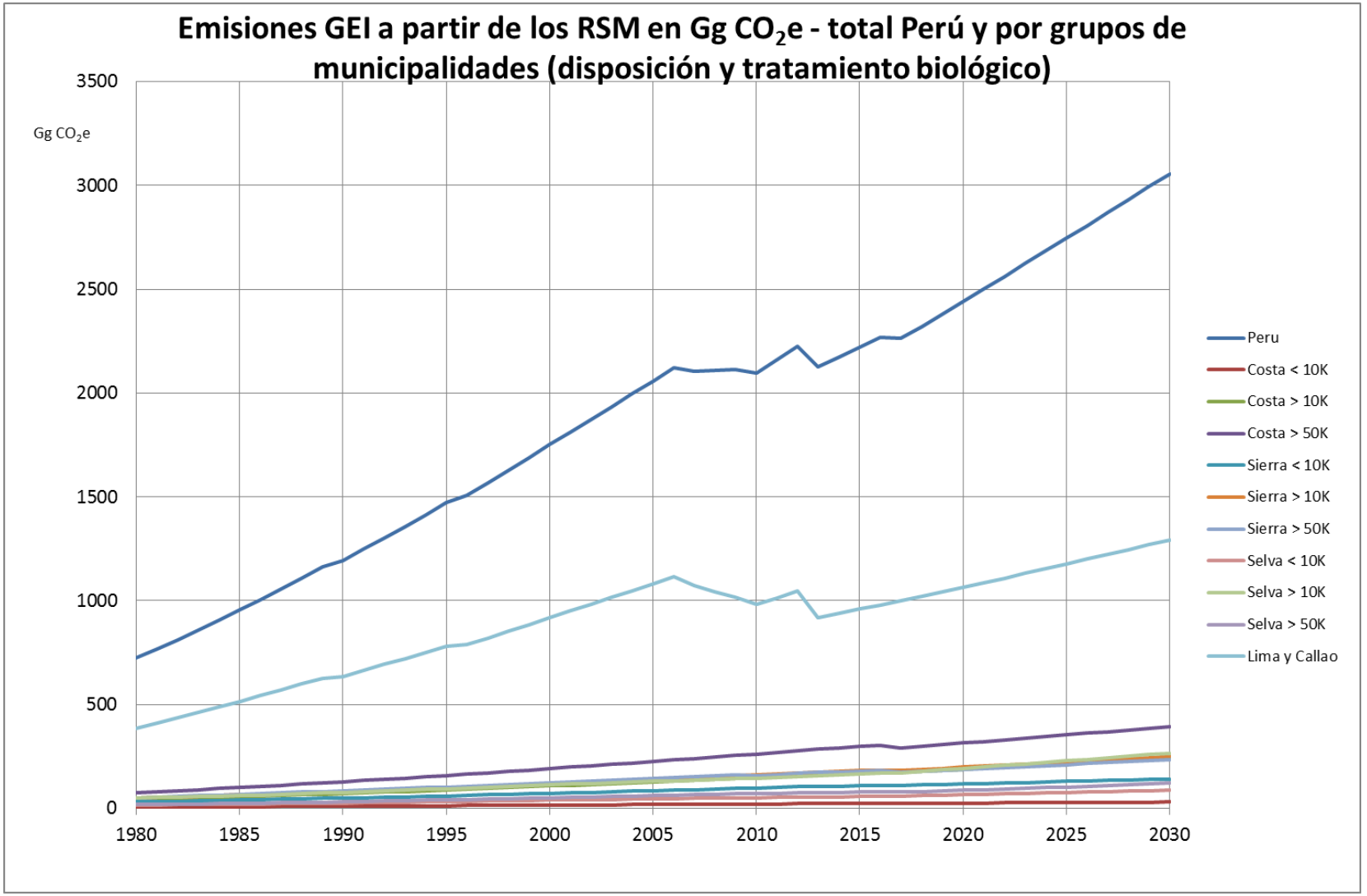
d) Combination of approaches could be used

e) Baseline metrics approach for activity 1,2,3,4,6
   - %age of urban population using BRTS/NMV for work trips
   - Current foot fall in existing city rail system/BRTS
   - Fuel mix composition
   - Qualitative: policy for technology standards for MVs

f) Project approach for 5

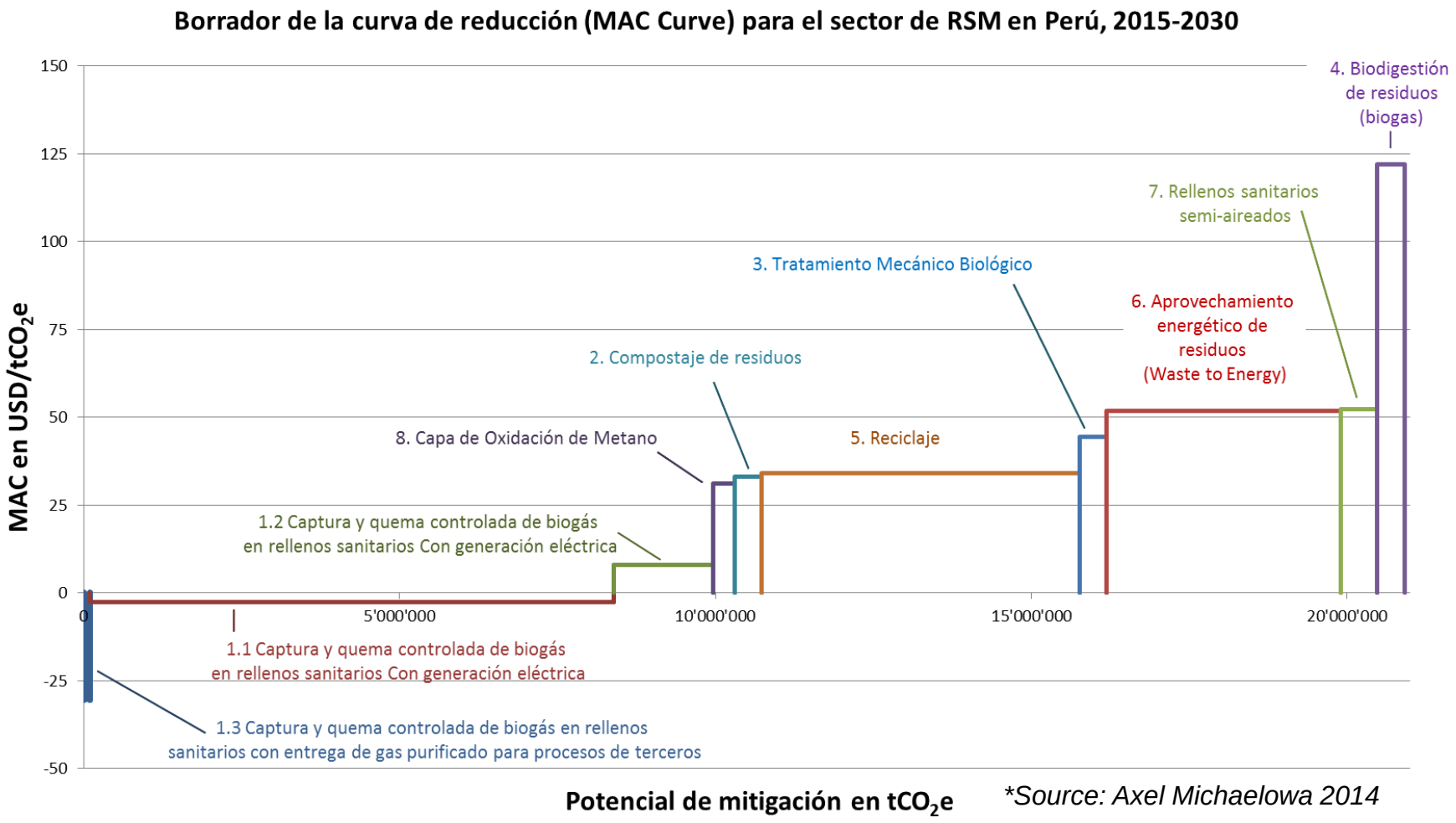
**Source: TERI 2014*

GHG emissions from SMW (Gg CO2e) – Total in Peru and per groups of cities (final disposal and biological treatment)



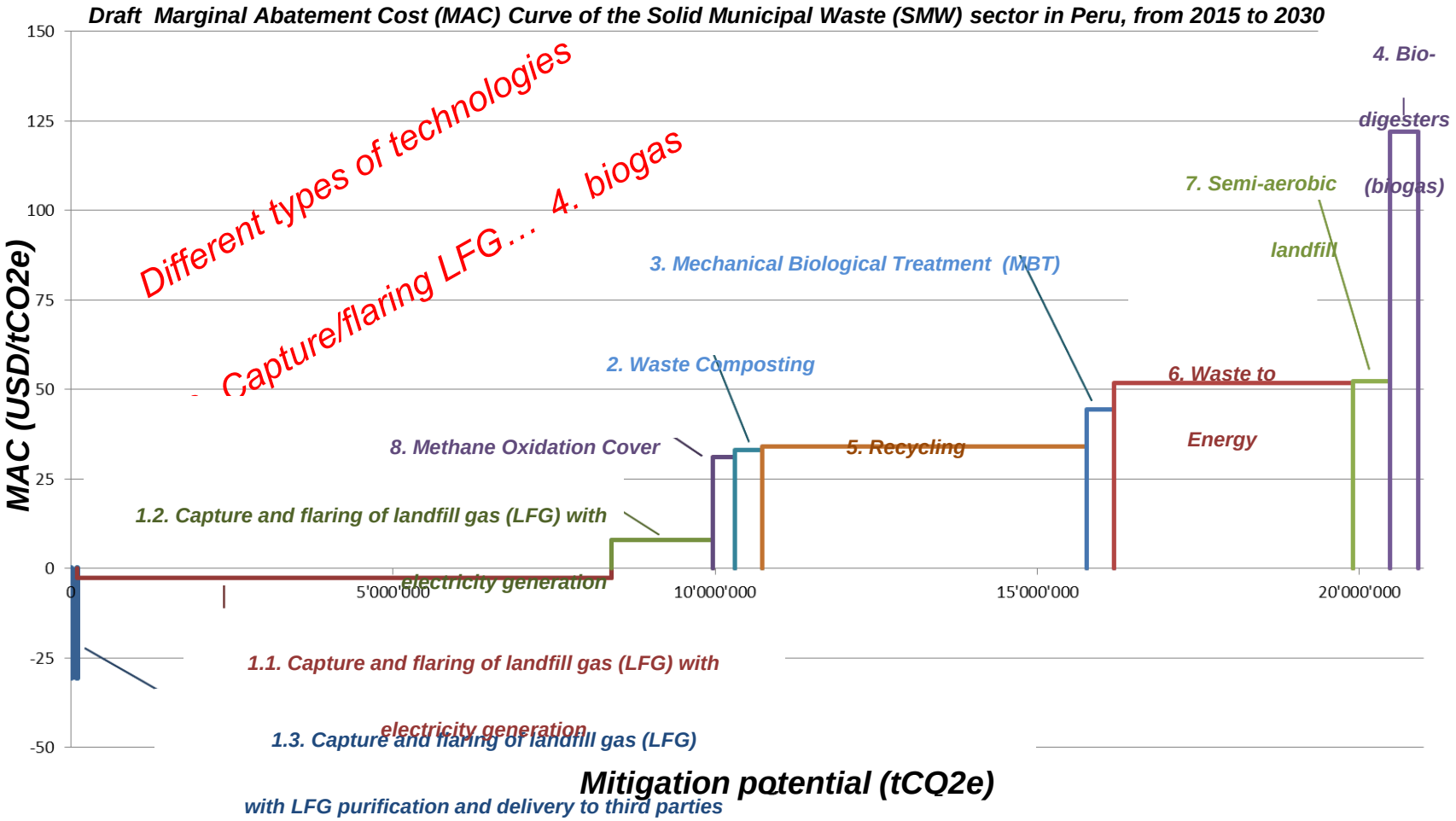
*Source: Axel Michaelowa 2014

Curva de costos de reducción



Source: Axel Michaelowa 2014

Costs for emission reductions for Solid Waste Management sector, 2015-2030



Objectives

RCC Support

Support in developing Baselines

- *Top down development of three SBs by UNFCCC and to process about eleven submissions from RCC supported regions.*
- *At secretariat level DNA Help Desk is providing targeted DNAs advice*
- *RCC Kampala and Lome is in the process of supporting development and approval of baselines in :*
    - *GEF*
    - *Rural Electrification*
    - *Forestry*
    - *Cook stove*
    - *fNRB*
    - *Methane destruction from LFG and Waste water*
    - *Charcoal Production*
    - *Clinker production*
    - *Transport*

Thank you for your attention

CDM Regional Collaboration Centre

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and the East African Development Bank

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