

Vega Bahia Landfill Project Design Document

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A. General Description of Project Activity

- **Title: Slavador da Bahia Landfill Gas Project**
- **Description**
 - 850,000 t MSW/yr
 - Organic content of waste 65%
 - Flaring equipment with capacity of 6,250 m³/hr in 2000 to be expanded to 46,250 m³/hr in 2020
 - 5% of CER proceeds will be allocated to local community and environmental activities (sustainable development)
- **Technical Description**
 - Biogas capture and treatment system complying with European standards
- **National and Sectoral Policies**
 - No specific requirement on gas management
 - New waste management policy under discussion but currently no changes are anticipated

B. Baseline Methodology

- **Title and Reference**

- Contractual amount of landfill gas capture and flaring defined through public concession contract

- **Justification of Choice of Methodology**

- There exists a contractual agreement where the operator is responsible for all aspects of the landfill
- Contract awarded through competitive bidding
- Contract stipulates amount of landfill gas to be flared
 - performance among top 20% in the previous 5 years
- No generation of electricity using captured methane occurs or planned

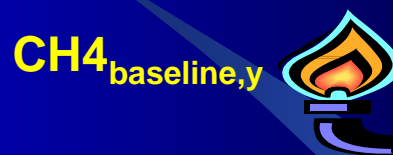
B. Baseline Methodology

• Description of Methodology



$CH_4_{\text{flared},y}$

Project



$CH_4_{\text{baseline},y}$

Baseline

$$ER_CH4_y = CH_4_{\text{flared},y} - CH_4_{\text{baseline},y}$$

$$ER_Y = ER_CH4_y * CF * GWP_CH4$$

ER_y :

GHG reduction in t CO_{2e}

ER_CH4_y :

Methane emission reduction in m³

CF:

0.000662 t CH₄/m³ CH₄

GWP_CH4:

21 (Global warming potential for CH₄)

B. Baseline Methodology

• Description of Methodology

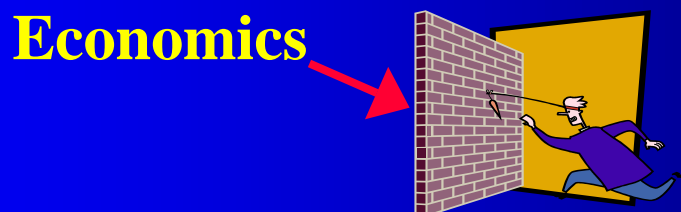
- First order decay model
- Applied to a single batch (either a layer or a year), then results are summed for all batches

$$\text{CH4}_{\text{projected},y} = k * L_o * \sum_{t=0 \text{ to } y} \text{Waste}_{\text{contract},t} * e^{-k(y-t)}$$

$\text{CH4}_{\text{projected},y}$:	Methane projected to be generated during a given year
K:	Decay rate
L_o :	$\text{m}^3 \text{CH4} / \text{t MSW}$
$\text{Waste}_{\text{contract},t}$:	Waste projected to be lanfilled at year t

B. Baseline Methodology

- Description of how emissions are reduced below baseline (Additionality)



- Services are paid through a fixed fee per ton MSW
- Contract clearly indicates amount of methane to be flared
- No regulatory requirement governs recovery, therefore, passive system of 20% efficiency are considered best practice

B. Baseline Methodology

- **Description of how the definition of project boundary is applied to the project**
 - Emissions occur within project boundary
 - Leakage emissions – Electricity used to pump the methane gas in the new collection system. This was ignored given the domination of hydro in the energy resource mix of Bahia
- **Details of baseline development**
 - Date of completing baseline: 18 June 2003
 - Name of person/entity determining baseline: ICF consulting

C. Duration of Project Activity

- **Starting date**
 - 1/1/03
- **Expected lifetime**
 - 17 years
- **Crediting period**
 - 7 years to be renewed

D. Monitoring Methodology

● Monitoring emissions from project activity

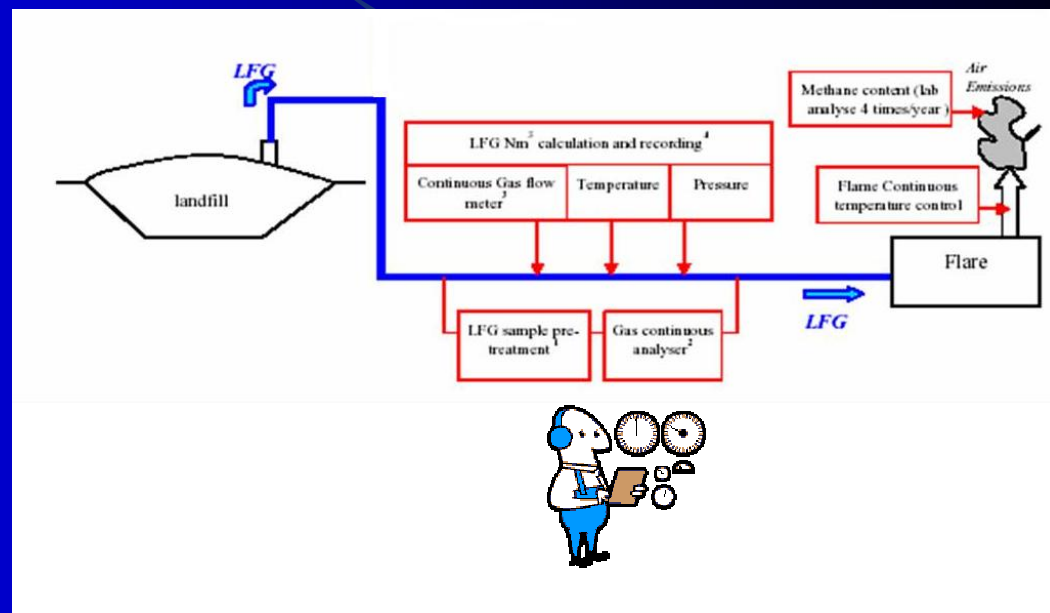
– Measured

- LFG (c)
- % CH₄ in LFG (c)
- Temp. (c)
- Pressure (c)
- SW disposed (d)

– Calculated

- Amount of methane flaring for baseline (a)
- Amount of methane collected in addition to baseline (a)
- CO_{2e} reduced (a)

a annual, d daily, c continuous



D. Monitoring Methodology

- **Quality Control / Quality Assurance Procedures**
 - Procedure for equipment calibration
 - ISO 9000/14000 certification

E. Calculation of Emission Reduction



Project



Baseline

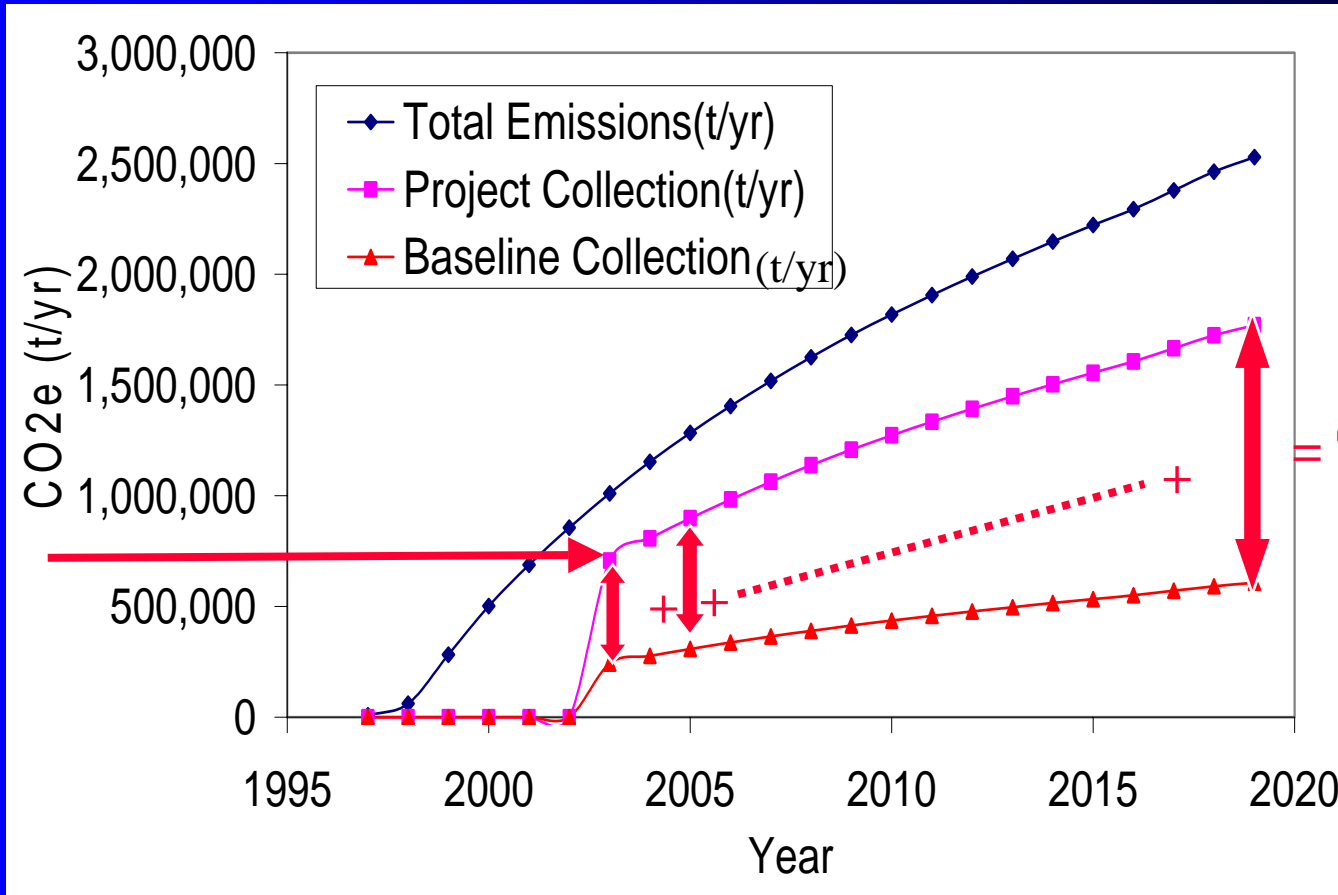
Corrected by
monitoring CH₄ flared

Corrected by monitoring
actual waste and % CH₄ in LFG

$$ER_CH4_{y=1to15} = 22,076,034^* - 7,568,926^* = 14,507,108 \text{ tCO}_{2e}$$

* Based on rough calculations (actual ICF calculations not included in PDD)

E. Calculation of Emission Reduction



* Based on rough calculations (actual ICF calculations not included in PDD)

F. Environmental Impacts

- **The project will destroy other emissions of local impacts besides methane e.g. volatile organic compounds (VOCs) → positive environmental impact**
- **No negative environmental impacts are associated with the project → no need for an environmental impact assessment**

G. Stakeholders Comments

- Meeting with the press → article in one of the newspapers, television broadcast, radio broadcast
- Public presentation with local stakeholders announced in 3 newspapers
- local authorities, press, NGOs, private sector, universities attended. A form for comments was distributed during the presentation
- Project brief available on website and an email for any comments from stakeholders
- Only technical comments were received