"Programme for supporting up-scaled mitigation action in Peru´s solid waste sector"

- Programme Solid Waste NAMA – Peru -

Monitoring Report Format

Disposal site name:	
Disposal site code:	
Mitigation Technology:	
Monitoring Period:	*<From DD/MM/YYYY to DD/MM/YYYY (both days included)>*
Name and position of the person in charge:	
Date:	
Version number of this verification format :	

1 – Description of the installed technology

1.1 – Installed technology:

*List and describe the equipment installed for the **waste treatment/ GHG mitigation** at the disposal site. The technologies included in the NAMA Solid Waste Peru are the following:*

- *T1: Landfill gas capture with flaring (Flaring)*
- *T2: Landfill gas capture with energy generation (heat or electricity) (LFGE)*
- *T3: Composting of organic waste segregated at the source (Composting)*

Additionally, the inclusion of the technology: T4: Mechanical Biological Treatment (MBT) is also considered, although it is not included in the NAMA.

Equipment name:	Description:

1.2 – Monitoring Equipment:

*List and describe the equipment installed to conduct GHG reduction **monitoring** at the disposal site based on the applied technology.*

Equipment name:	Description:

1.3 – Current status of the installed systems:

Describe the current status of the installed monitoring systems and any irregularity that may have affected the Project capacity for treating waste, GHG monitoring, correct monitoring of the reductions, etc. This includes maintenance of the equipments, periodical calibration of the monitoring instruments, problems in the installed devices (burner, turn-over machine, trommel, etc), based on the installed technology.

Equipment:	Problem/ Irregularity and period when it happened (date, time, length):

1.4 – Calibration of monitoring equipment

Include the relevant information related to the calibration of each installed or already existent monitoring equipment according to the provided format. The calibration certificates should be enclosed to this report.

Equipment:	Frequency of required calibration (manufacture data):	Date(s) of conducted calibration:

2 – Report on the reduced GHG emissions monitoring

In the following item, only those sections related to the installed technology at the disposal site must be completed. Please, leave in blank, those sections related to technologies that do not apply/ are not installed at the disposal site.

Installed technology:	Section to fill in:
T1: Landfill gas active capture and flaring without power generation	2.1 and its sub-sections
T2: Landfill gas active capture and flaring with power generation	2.2 and its sub-sections
T3: Composting	2.3 and its sub-sections
T4: Mechanical Biological Treatment *(*)*	2.4 and its sub-sections

(*)Technology not included in the NAMA municipal Solid Waste Peru.

2.1 – T1 Technology: Landfill gas flaring without power generation

This section corresponds to those disposal sites where the technology for landfill gas active capture and flaring without power generation was installed. Please, if applicable, complete the following sub-sections.

2.1.1 – Baseline Emissions

The following parameters must be monitored and registered as indicated in the Annex 2 of the report " NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date/ Hour	LFG Pressure (P) – (Pa)	LFG temperature (T) – (ºC)	LFG flow value - (m^3/s)	Correct LFG flow value for normal conditions - (Nm^3/s)	Net flared LFG amount in a period of time - (Nm^3)	Methane content on LFG -(% based on the volume)	Humidity content in LFG – (%)	Methane flaring ($F_{CH4,flared,y}$) - Kg	Flaring operation – Yes/No	Baseline emissions ($BE_{CH4,y}$) -(tCO_2)

Instructions:

Date/hour: The values must be monitored continuously and it is recommended to use a period of time of 30 minutes.

LFG Pressure (P): It must be monitored continuously and registered each time the LFG flow is registered. This value is used to obtain the flow under normal pressure conditions.

LFG temperature (T):It must be monitored continuously and registered each time the LFG flow is registered. This value is used to obtain the flow under normal pressure conditions.

LFG flow value (as indicated by the flow measurer at the indicated date and time): Value in m^3/hour according to the value indicated at the flow measurer.

Net flared LFG amount in a period of time(Nm^3): Calculation of the LFG by using LFG flow values and the period of time used in the column "Time".

Content of methane in the LFG (% based on the volume): Fraction of methane in the LFG in the specified date and time (if monitored continuously) or the closest value in the case sampling is used.

Humidity content in the LFG: Humidity content must be used to correct the methane contents in the LFG.

Methane flaring ($F_{CH4,flared,y}$):Calculated using the flared LFG value and % of methane in the LFG. A 90% efficiency value must be considered. This value will not be expressed in Kg.

Flaring operation: If the flame is not detected, the emission reduction since the last time it was detected as operative cannot be accounted

Baseline emissions ($BE_{CH4,y}$): Calculated according to the equation 7.

Project emissions of the flaring: must be calculated by using the previous table and applying the formula 18 for considering landfill gas that is not combusted in the flare (due to flaring efficiency).

2.1.2 – Project emissions due to fossil fuel consumption

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Amount of flared fossil fuel($FC_{i,y}$) - (m^3 or Kg)	Emission factor of fossil fuel used on trucks($EF_{CO2,I,y}$) -(tCO_2e/km)	Calculation of Project emissions due to fossil fuel consumption -(tCO_2)

Instructions:

Date / Hour: *Each time fossil fuel is used, it should be monitored and registered.*

Amount of flared fossil fuel (in m^3 o Kg) ($FC_{i,y}$): Each time fossil fuel is used, it should be registered along with the consumed amount.

Emission factor of fossil fuel used on trucks (en tCO_2e/km) ($EF_{CO2,I,y}$): default values can be used

Calculation of Project emission due to fossil fuel consumption: Use equation 16

2.1.3 – Project emissions due to electricity consumption

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Electricity consumption - (MWh)	Emission factor of the grid - (tCO_2/MWh)	Transmission and distribution losses - (%)	Project emissions due to electricity consumption - (tCO_2)

Instructions:

Date / Hour: If there is no measurer in the site to read the values daily, then monthly values provided by the electric company should be used.

Electricity consumption: Values in MWh must be included to account for the electricity consumed by the project.

Emission factor of the electric grid: The emission factor of the electric grid must be used. The published or calculated value of the emission factor of the combined margin must be usually used. The value must be in tCO_2/MWh.

Transmission and distribution losses: Ex ante default value set in the project emission calculation must be used.

Project emissions due to electricity consumption: Calculated according to the equation 17.

2.1.4 – Project emissions due to the incremental transport of raw material

These emissions will only be monitored and informed in those cases when an increase on the transport distance up to the disposal site occurs. The case when the distance is reduced by the project activity will be ignored following a conservative approach.

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Number of trucks entering the site(CT_y) - (N)	*Average incremental distance* ($DAF_{res\text{-}waste}$) - (km/truck)	*Emission factor of fossil fuel used on trucks*($EF_{CO2,transport}$) - (tCO_2e/km)	*Calculation of project emissions due to waste transport* - (tCO_2)

Instructions:

Date / Hour: Each time the gross waste enters the disposal site, it should be weighted and registered.

Number of trucks entering the disposal site (CT_y): The number of times that trucks enter a disposal site carrying gross waste must be registered and calculated directly by using total waste that enters the disposal site divided by the average truck capacity.

Average incremental distance ($DAF_{res\text{-}waste}$): The value of the incremental distance in km/truck must be determined ex-ante.

Emission factor of fossil fuel used on trucks (en tCO_2e/km) ($EF_{CO2,transport}$): Default values can be used.

Calculation of project emissions due to waste transport. Calculation must be done by following equation 15.

2.1.5 – Total GHG reductions of GHG reductions obtained during the monitoring period for landfill gas capture and flaring without power generation

Complete the following table based on the results obtained in the previous sub-sections. You must report herein the total sum of the emission of each component for the entire monitoring period reported in the following document and calculate GHG emissions reduction based on the equations 7, 14 and 5.

Baseline emissions (2.1.1) during the monitoring period	Project emissions due to fossil fuel consumption (2.1.2) during monitoring period	Project emissions due to electricity consumption(2.1.3) during monitoring period	Project emissions due to raw material incremental transport (2.1.4) during monitoring period	GHG reductions achieved during monitoring period

2.2 – T2 Technology: Landfill gas flaring with electricity generation

This section corresponds to those disposal sites where active landfill gas capture and flaring technology with electricity generation have been installed. Please, if this is the case, complete the following sub-sections.

2.2.1 – Baseline emissions

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date/ Hour	LFG Pressure (P) – (Pa)	LFG temperature (T) – (ºC)	LFG flow value - (m^3/s)	Correct LFG flow value for normal conditions - (Nm^3/s)	Net flared LFG amount in a period of time - (Nm^3)	Methane contents in LFG - (% based on volume)	Humidity contents in LFG – (%)	Methane flaring ($F_{CH4,flared,y}$) - Kg	Flaring operation/ power generation -Yes/No	Baseline emissions ($BE_{CH4,y}$) -(tCO_2)

Instructions:

Date/hour: The values must be monitored continuously and a period of time of 30 minutes is recommended.

LFG Pressure (P): It should be monitored continuously and registered each time the LFG flow is registered. This value is used to obtain the flow under normal pressure conditions.

LFG temperature (T): Must be monitored continuously and registered each time the LFG flow is registered. This value is used to obtain the flow under normal pressure conditions.

LFG flow value (as indicated by the flow measurer at the indicated date and time): Value in m^3/hour according to the value indicated at the flow measurer. In this case, the value corresponds to the sum between landfill gas used in the generators and the landfill gas sent to flaring

Net flared LFG amount in a period of time (Nm^3): Calculation of the LFG by using LFG flow values and the period of time used in the column "Time".

Content of methane in the LFG (% based on the volume): Fraction of methane in the LFG in the specified date and time (if monitored continuously) or the closest value in the case sampling is used.

Humidity content in the LFG: Humidity content must be used to correct the methane contents in the LFG.

Methane flaring ($F_{CH4,flared,y}$):Calculated using the flared LFG value and % of methane in the LFG. A 90% efficiency value must be considered. This value will not be expressed in Kg.

Flaring operation / power generation: If the burner flare is not detected or the generators are not operative for any reason, non emission reduction since the last time it was detected as operative can be accounted.

Baseline emissions ($BE_{CH4,y}$): Calculated according to the equation 7.

Project emissions of the flaring: must be calculated by using the previous table and applying the formula 18 for considering landfill gas that is not combusted in the flare (due to flaring efficiency).

2.2.2 – Project emissions due to fossil fuel consumption

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Amount of flared fossil fuel ($FC_{i,y}$) - (m^3 or Kg)	Emission factor of fossil fuel used on trucks ($EF_{CO2,I,y}$) -(tCO_2e/km)	Calculation of Project emissions due to fossil fuel consumption - (tCO_2)

Instructions:

Date / Hour: *Each time fossil fuel is used, it should be monitored and registered.*

Amount of flared fossil fuel (en m^3 o Kg) ($FC_{i,y}$): Each time fossil fuel is used, it should be registered along with the consumed amount.

Emission factor of fossil fuel used on trucks (en tCO_2e/km) ($EF_{CO2,I,y}$): default values can be used

Project emission calculation due to fossil fuel consumption: Use equation 16

2.2.3 – Project emissions due to electricity consumption

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Electricity consumption - (MWh)	Emission factor of the grid - (tCO_2/MWh)	Transmission and distribution losses - (%)	Project emissions due to electricity consumption - (tCO_2)

Instructions:

Date / Hour: If there is no site measurement, read the values daily, then monthly values provided by the electric company should be used.

Electricity consumption: Values in MWh should be included to account for the electricity consumed by the project.

Emission factor of the electric grid: The emission factor of the electric grid must be used. Published values or emission factor calculation of the combined margin must be usually applied. The value must be in tCO_2/MWh.

Transmission and distribution losses: An ex -ante default value fixed in the calculation of project emission must be applied.

Project emissions due to electricity consumption. Calculated according to equation17.

2.2.4 – Project emissions due to raw material incremental transport

These emissions will only be monitored and informed in those cases when an increase in the transport distance to the disposal site occurs. The case when distance is reduced by the project activity will be ignored following a conservative approach.

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Number of trucks entering the disposal site (CT_y) - (N)	*Average Incremental distance* ($DAF_{res\text{-}waste}$) - (km/truck)	*Emission factor of fossil fuel used on trucks* ($EF_{CO2,transport}$) - (tCO_2e/km)	*Calculation of project emissions due to waste transport* - (tCO_2)

Instructions:

Date / Hour: Each time the gross waste enters the disposal site, it should be weighted and registered.

Number of trucks entering the disposal site (CT_y): The number of times that trucks enter a disposal site carrying gross waste must be registered and calculated directly by using the total waste that enters the disposal site divided by the average truck capacity.

Average incremental distance ($DAF_{res\text{-}waste}$): Incremental distance value in km/truck must be determined ex-ante.

Emission factor of fossil fuel used on trucks (en tCO_2e/km) ($EF_{CO2,transport}$): Pre-determined values can be used
.

Calculation of project emissions due to waste transport. Calculation must be done following equation 15.

2.2.5 – Monitoring of additional parameters

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Electricity generation - (MWh)	Emission factor of the grid – (tCO_2/MWh)	Transmission and distribution losses - (%)	Baseline emissions due to the electricity supplied to the grid - (tCO_2)

Instructions:

Date / Hour: It is recommended that at least one daily value of generated electricity is registered. Cumulative measurers must be used to ensure that all the data is registered..

Electricity generation: The Value that has been continuously monitored at the generator´s exit.

Emission factor of the grid: Emission factor value of the grid must be used. Published value or the calculation of the combined margin of the emission factor can be applied. The value will be tCO_2/MWh.

Transmission and distribution losses: Fixed ex ante value must be applied in the calculation of project emission.

Baseline emissions due to the electricity supplied to the grid. Calculate according to equation12.

2.2.6 – Total de GHG reductions achieved during monitoring period for landfill gas capture and flaring technology with power generation

Complete the following table based on the results obtained in the previous sub-sections. You must report herein, the total sum of the emission of each component for the entire monitoring period reported in the following document and calculate the GHG emissions reduction based on the equations 7,14 , 6 and 5.

Emissions of the baseline (2.2.1) due to the landfill gas flaring during monitoring period	Baseline emissions (2.2.5) due to energy generation during monitoring period	Project emissions due to the fossil fuel combustible consumption (2.2.2) during monitoring period	Project emissions due to electricity consumption(2.2.3) during monitoring period	Project emissions due to raw material incremental transport (2.2.4) during monitoring period	GHG reductions achieved during monitoring period

2.3 – T3 Technology: Composting

This section corresponds to those disposal sites where the composting technology is installed. Please, if applicable, complete the following sub-sections.

2.3.1 – Baseline emissions

In this case, baseline emissions correspond to the organic waste which will not be disposed at the disposal site.
The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Amount of organic treated waste - (t)	Weight fraction- (%)	Amount of produced compost - (t)	Avoided methane emissions - (tCO_2)

Instructions:

Amount of treated organic waste: the amount of treated waste must be registered by writing down each time the truck with organic waste enters the composting site.

Weight fraction: a representative sample of the organic waste must be analyzed to determine the weight fraction for each type of waste.

Amount of produced compost: the amount of compost must be monitored registering all the times that a truck leaves the composting site with compost.

Avoided methane emissions: Calculate using equations 9 y 10.

2.3.2 – Project emissions due to electricity use

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Electricity consumption - (MWh)	Emission factor of the grid - (tCO_2/MWh)	Transmission and distribution losses - (%)	Project emissions due to electricity consumption - (tCO_2)

Instructions:

Date / Hour: If there is no site measurement, read the values daily, then monthly values provided by the electric company should be used.

Electricity consumption: Values in MWh should be included to account for the electricity consumed by the project.

Emission factor of the electric grid: The Emission factor of the electric grid must be used. Published values or emission factor calculation of the combined margin must be usually applied. The value must be in tCO2/MWh.

Transmission and distribution losses: ex ante default value fixed in the calculation of the project emission must be applied.

Project emission due to electricity consumption: Calculated according to equation 17.

2.3.3 – Project emission due to compost transport

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Number of trucks leaving the site – (N)	Average distance of the location where final compost is used- (km/truck)	Emission factor of fossil fuel used in truck - (tCO_2/km)	Leakage emission factor due to compost transport - (tCO_2)

Instructions:

Date / Hour: Each time the trucks leave the site must be weighted and registered.

Number of trucks leaving the site: The number of times that trucks leaves the site with compost must be registered or calculated directly by using total waste produces divided by the average truck capacity.

Average distance to the location where final compost is used: the value of the distance in km/truck can be determined ex – ante.

Emission factor of fossil fuel used on trucks (en tCO_2/km): IPCC default values.

Calculation of leakage emissions due to compost transport: the calculation must be done following the equation 15

2.3.4 – Project emissions due to composting process

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Amount of treated waste - (t)	Methane emission factor ($EF_{CH4,y}$) - (tCH_4/t_{waste})	Emission factor N_2O ($EF_{N2O,y}$)- (tN_2O/t_{waste})	Project emissions- (tCO_2)

Instructions:

Amount of treated waste: The amount of treated waste must be registered each time the truck enters the composting site.

Methane emission factor ($EF_{CH4,y}$): Methane emission factor by ton of composted waste. Use default values.

Emission factor N_2O ($EF_{N2O,y}$): N_2O emission factor by ton of composted waste. Use default values.

Project emissions: Calculate using equations 19 and 20.

2.3.5 – Total de GHG reductions achieved during monitoring period due to composting technology

Complete the following table based on the results obtained in the previous sub-sections. You must report herein, the total sum of the emission of each component for the entire monitoring period reported in the following document and calculate the GHG emissions reduction based on the equations 14, 19, 20 and 5.

Baseline emissions (2.3.1) due to organic waste that will not be disposed at disposal sites	Project emissions due to electricity consumption(2.3.2) during monitoring period	Project emissions due to compost transport (2.3.3) during monitoring period	Project emissions due to composting process (2.3.4) during monitoring period	GHG reductions achieved during monitoring period

2.4 – T4 Technology: Mechanical Biological Treatment (MBT)

This section corresponds to those disposal sites where MBT technology has been installed. Please, if this is the case, complete the following sub-sections.

2.4.1 – Baseline emissions

The baseline emissions in this case corresponds to those organic waste that will not be disposed at the disposal site (reduction of organic fraction)

.

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Amount of treated organic waste - (t)	Weight fraction- (%)	Waste amount avoided to be disposed - (t)	Avoided methane emission - (tCO_2)

Instructions:

Amount of treated organic waste: The amount of treated waste must be registered by taking notes each time the truck with organic waste enters the MBT site.

Weight fraction: a representative sample of the organic waste must be analyzed to determine the weight fraction of each waste type.

Waste amount avoided to be disposed: the amount of waste must be monitored registering difference between the amount entering MBT and those that were finally disposed at disposal site.

Avoided methane emissions: Calculate using equations 9 and 10.

2.4.2 – Project emissions due to the use of electricity

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Electricity consumption - (MWh)	Emission factor of the grid - (tCO_2/MWh)	Transmission and distribution losses - (%)	Project emissions due to electricity consumption - (tCO_2)

Instructions:

Date / Hour: If there is no site measurement, read the values daily, then monthly values provided by the electric company should be used.

Electricity consumption: Values in MWh should be included to account for the electricity consumed by the project.

Emission factor of the electric grid: The emission factor of the electric grid must be used. Published values or calculation of emission factor of the combined values must be applied. The value must be in tCO2/MWh.

Transmission and distribution losses: Default values fixed ex- ante must be applied in the calculation of the Project emission.

Project emissions due to electricity consumption: Calculated according to equation 17.

2.4.3 – Project emissions due to transport

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Date / Hour	Number of trucks leaving the site – (N)	Average distance to the location of final use - (km/truck)	Emission factor of fossil fuel used by trucks - (tCO_2/km)	Leakage emission calculation due to transport - (tCO_2)

Instructions:

Date / Hour: Each time the trucks leave the site must be weighted and registered.

Number of trucks leaving the site: the number of trucks leaving the site can be registered directly or calculated using the total produced and divided by the average truck capacity.

Average distance to the location of final use. Value of the distance in km/truck can be determined ex – ante.

Emission factor of fossil fuel used on trucks (en tCO_2/km): IPCC default values can be used.

Calculation of leakage emissions due to transport: Calculation must be used following equation15

2.4.4 – Project emissions due to MBT process

The following parameters must be monitored and registered as indicated in the Annex 2 of the report "NAMA Performance metrics and MRV system". As many lines as necessary must be added to cover the entire monitoring period.

Amount of treated waste - (t)	Emission factor of methane ($EF_{CH4,y}$) - (tCH_4/t_{waste})	Emission factor of N_2O ($EF_{N2O,y}$)- ($tN_2O/twaste$)	Project emissions - (tCO_2)

Instructions:

Amount of treated waste: The amount of treated waste must be registered each time the truck with solid waste enters the MBT site.

Emission factor of methane ($EF_{CH4,y}$): Methane emission factor by ton of treated waste. Use default values.

Emission factor of N_2O ($EF_{N2O,y}$): Emission factor of N_2O by ton of treated waste. Use default values.

Project emissions: Calculate using equations 19 and 20.

2.4.5 – Total GHG reductions obtained during the monitoring period through MBT technology

Now, complete the following table based on the results obtained in the previous sub-sections. Your must report herein the total sum of the emissions of each component for the entire monitoring period that is reported in the following document and calculate GHG emission reductions based on the equations 7, 14, 6 and 5.

Baseline emissions (2.4.1) due to the reduction of organic fraction of waste	Project emissions due to electricity consumption(2.4.2) during monitoring period	Project emissions due to transport (2.4.3) during monitoring period	Project emissions due to MBT process (2.4.4) during monitoring period	GHG reductions achieved during monitoring period

3 – Other aspects of the technology operation applied to the disposal site

3.1 – Final disposal site managing

In this item, describe who is in charge of the disposal site operation, how many people work there, have the requirements for disposal site managing being complied during the monitoring period, and if there is any incidence related to poor waste management/ installed technology.

3.2 – Legal aspects

Describe briefly the situation of the regularization of environmental issues of the disposal site. First, write down the permits and licences in force and its application. Then inform any ongoing or initiating administrative proceedings, describing the current status of the process in both cases.

3.3 – Financial and economical aspects

In case it is the first year of operation of the new technology, describe and support the total final value of the performed investment. In other case, describe the operation and maintenance cost during during monitoring period. Additionally, break down the analysis of the starting up process of mitigation technology and implementation of the MRV system, following the scheme proposed below.

Element	Detail	Amount *(USD)*	Comments
Start up of the mitigation technology	*Investment cost*		
	Operation and maintenance cost		
Implementation of MRV system	*Investment cost*		
	Operation and maintenance cost		
TOTAL:			

4 – Co-benefits of the observed sustainable development

Complete the following table related to the co-benefits of the Project sustainable Development. Additionally describe any other observed co-benefit that is not reported in the table.

Co-benefit	Description	Data report:
Job creation	Describe the number of jobs created during the monitoring period, differentiating among short and long term jobs	
Economic growth	Explain the investment done at the disposal site for the project implementation. If there are new commercial or industrial activities or business opportunities related to the project, name them. And describe new infrastructures at the disposal site	
Technology transfer	Describe the technologies implemented in the Project differentiating between new technologies and adaptation of technologies. Describe if training measures related to such technologies have been conducted	
Energy (diversification and conservation of energy sources, energy safety)	Describe which was the energy reliance of the disposal site before the implementation, how has the situation changed and what is the reason for this change. Inform any change on the waste transport distance that has occurred	
Payment Balance	Describe the approximate energy expenses before and after the project implementation	
Increase of savings and revenues	Describe total savings due to the implementation of the project during the monitoring period at the disposal site compared to the situation in the absence of the project. Differentiate between the savings caused by the energy reliance, savings in leachate treatment costs and savings in the equipment maintenance	
Health and Safety (improve sanitary conditions and health standards)	Describe the improvements observed during the sanitation and waste management at the disposal site	
Education (facilitate the Access to education, provide information, investigation or increase of awareness)	Describe if dissemination programmes have been conducted on the implemented activities or training programmes for workers.	
Well-being (Improve working and local life conditions)	Describe the improvements in the observed working conditions, describe the potential improvement in the purchasing power of the workers and if any activity has been conducted that implies the involvement of the people of the area (e.g. waste segregation, etc.)	
Reduction of local environmental impacts	Describe if there is a reduction of odours, ashes, noise, dust., SOx, NOx, if there is a reduction of the number of explosions and fires, if there is an improvement in the amount, quality and ecological situation of the water from the site, if manure, mineral fertilizers or other soil nutrients have been produced derived from the implementation of the project and if there is an improvement on the life time of the products and equipments usually used at the disposal site.	

Additional remarks: