

HARVEST WASTE

Initial Scope Development Studies



HARVEST
W A S T E

DEVELOPMENT STUDIES – INITIAL SCOPE

6 studies are key to verify assumptions and to define the Feasibility of a project

For these studies, Harvest Waste developed full Request for Proposal templates

- Waste Characterization Study
- Waste Development study
- Permit Analysis
- Grid Study
- Environmental and Social Impact Assessment
- Geotechnical / topographical study

WASTE CHARACTERIZATION STUDY

Objective and scope of work

Objective

In general, a waste characterization study defines the composition of the waste and ensures that:

- The calorific value of the waste is known. This is a basic variable for a valid business case of the WtE plant; needs to be completed with deviations from the mean, especially regarding pollutants (HCl, SO₂, Hg etc.) and CV.
- Composition of the waste is determined according to valid methods.

Outcome of this study legitimizes a key part of the HE WtE business case



Scope or Work

1. Sampling plan
 - Plan defines sampling method; population determination, area, number of samples, locations, intervals, etc
 - To be executed in 2 sampling campaigns (dry season wet season), and or other seasons when relevant
 - Method for bomb- calorific instrument and the equipment used for grinding
2. Sampling according to *EN15442 methods for sampling of solid recovered fuels*. The sample size 300 kg and each sample should consist of 12 increments of approximately 25 kg, or according to *ASTM D5231-92 determination of the composition of unprocessed MSW*
3. Sorting according to *EN15440 Methods for the determination of the biomass content of solid recovered fuels*
4. Sample preparation according to *EN15443 methods for sample preparation of solid recovered fuels*
5. Analysis & Reporting (interim report after first sampling campaign required)

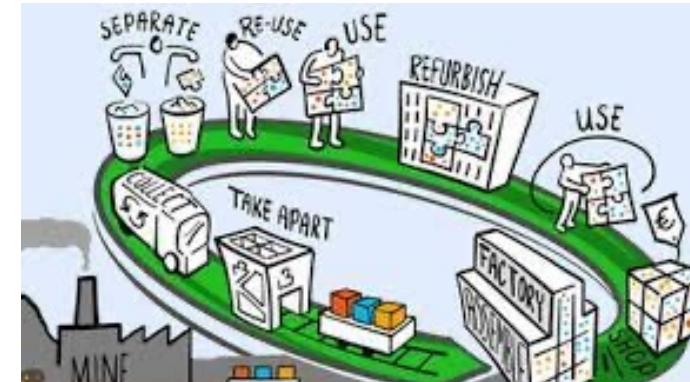
WASTE DEVELOPMENT STUDY

Objective and scope of work

Objective

To determine a tenable future waste composition and calorific value. Output of the waste characterization study will be used as a baseline for this study

Outcome of this study legitimizes a key part of the HE WtE business case



Scope or Work

1. Recycle potential in the current MSW
2. Current waste management strategy and collection schemes
3. Population (current, expected, economic, wealth, etc.)
4. Policies, regulations and waste management strategies (in development)
5. Financial structure for waste management

PERMIT ANALYSIS

Objective and scope of work

Objective

The permit analysis will provide guidance to the project with respect to the countries permitting process, permit requirements and regulatory obligations for the proposed activities. Permits are defined as all permits, licenses, approvals, provisions, and notifications necessary to allow legal start of the proposed activities.

The analysis shall cover all types of regulatory submittals (at all levels that apply – national, local) and it will also cover the different phases of the activities (i.e. construction, operations).



Scope or Work

- Framework. A summary of the regulatory framework that applies to the project components.
- Permitting process. Provide detailed specific information about the key permitting process. Also, it will provide flowcharts and descriptions of the
 - various steps
 - ministry interactions / input that would need to occur
 - timing of activities
- Permitting requirements. Data requirements to be developed / gathered for each step / permit
- Regulatory Agencies. Provide a summary of each of the applicable regulatory agencies that provide support and approvals with which the project must engage at various intervals. Present a brief description of these agencies and their primary role.
- Summary of Regulatory Submittals. This is a table that breaks down all the applicable regulatory submittals that apply to the Project.

GRID STUDY

Objective and scope of work

Objective

In general, a grid study is to develop an interconnection scheme between the HE WtE Power Plant and the projected transmission line / network, for stable and reliable evacuation of electrical power

Results of the grid study will be the needed for electricity generation license.



Scope or Work

1. Load Flow and Contingency Analysis
2. Steady-state analysis
3. Reporting, including:
 - Interconnection with national grid, distance and name of nearest grid;
 - Capacity transmission of the grid;
 - Grid stability for on of power evacuation, check for redundancy of connections
4. In later stage; Dynamic and transient stability analysis
5. Overview of regulations, standards and norm for electrical installations



ENVIRONMENTAL & SOCIAL IMPACT (ESIA)

Objective and scope of work

Objective

- inform decision-makers and the public of the environmental consequences of implementing the WtE plant.
- identify, predict, and analysis of the impacts on the environment and people in the project area of influence.
- identify alternatives and mitigation measures to reduce the environmental effect of the WtE plant.
- EIA process plays significant role in the overall decision-making by promoting transparency and public involvement

Results are needed for construction / operational permits & funding



Scope or Work

1. Policy, legal, and administrative framework
2. Project description
3. Baseline data
4. Environmental impacts
5. Social impact
6. Analysis of alternatives
7. Environmental Management Plan (EMP). Covers mitigation measures, monitoring, and institutional strengthening
8. Report, including executive summary with concisely discusses significant findings and recommended actions.

According to IFC Performance Standards, amongst others

GEOTECHNICAL / TOPOGRAPHICAL STUDY

Objective and scope of work

Objective

To determine if all the conditions are met for a sound and environmentally safe construction on the proposed site.

Results of these studies are key to start the design



Scope or Work

1. Soil investigation study
2. Composition of soil layers
3. Geotechnical study
4. Aviation limits
5. History and artifacts
6. Determine if there is war legacy
7. Availability of water