Project: Project Waste to Energy (WtE) in Asoun Village, Caza of Dannieh, Lebanon

Technology: Anaerobic Digestion plant to produce electricity

**Questionnaire**

1. **Introduction**

This questionnaire is designed to thoroughly assess the current status of solid waste management in the area and the proposed project's characteristics.

To ensure an accurate evaluation, it is imperative to provide all the requested details in the survey as comprehensively and precisely as possible.

1. **Contact Details** 
   1. **Name and address of authority responsible for the proposed Project**

|  |  |
| --- | --- |
| **Contact details** | |
| Name of the project |  |
| Full name of the owner of the project |  |
| Phone: | E-mail: |
| Municipality |  |
| Street Address |  |
| Phone: | E-mail: |
| Name and telephone of the responsible for solid waste management | |
| Signature of Customer: | |
| Date of Filling in: |  |

* 1. **Area of jurisdiction**

Rural area: (km²)

Total area: (km²)

* 1. Population

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **General information about the Collection of Municipal Solid Waste** | | | | | | | | | | |
|  | **Collection Frequency** | | | | **Amount of Solid**  **Wastes Collected per Each Collection** | | | | **Average Amount of Solid Wastes (SW) Collected/ Day** | |
| **Summer Time** | 1. Daily  2. once/2days  3. once/3days  4. weekly  5. Other (specify) | | | |  | | | |  | |
| **Winter Time** | 1. Daily  2. once/2days  3. once/3days  4. weekly  5. Other (specify) | | | |  | | | |  | |
| **Method of Collection** | **Private Sector** | | | | **Municipality** | | | |  | |
| **Cost of Collection /Month** | | | | |  | | | |  | |
|  | | | | |  | | | |  | |
| **Type of storage bin used in the region** | | | | |  | | | |  | |
| Communal Containers | | | | | Metal bin | | | | | |
|  | | | | | Plastic bin | | | | | |
|  | | | | | Oil drum | | | | | |
|  | | | | | Other | | | | | |
|  | | | | |  | | | | | |
| **General information about the region where the Anaerobic Digestion Treatment is expected to be located** | | | | | | | | | | |
| What is the number of inhabitants in the adjacent city /city district (in thousands, people)? | | | | | | | | |  | |
| Are there plans to receive waste from the adjacent residential communities, cities, districts? | | | | | | | | |  | |
| What is the number of inhabitants to be covered by the services in waste collection and treatment (sorting) at the proposed project? | | | | | | | | |  | |
| What is the distance from the adjacent residential community (ies) to the proposed location of the proposed project? | | | | | | | | |  | |
| What is the waste generation rate per capita (cubic meters) in the region where the proposed project is to be located? | | | | | | | | |  | |
| What fee policy is applicable to waste collection and dumping in the region where the proposed project is to be located? \* | | | | | | | | |  | |
| Does any Concept for collection, transportation, treatment and burial of solid municipal waste (SMW) exist in the region where the facility (proposed project) will be potentially built? | | | | | | | | |  | |
| What regulatory authorities in the field of ecology, sanitation, civil defense and emergency response, utilities, are located in the area designated for the potential construction of the proposed project? | | | | | | | | |  | |
| What regulatory guidelines, acts and protocols directly related to the matters of ecology, utilities and environmental protection are effective in the region designated as a proposed location of the proposed project. When and by what organization were they issued (what organization monitors compliance with such regulations)? | | | | | | | | |  | |
| What environmental problems exist in the region (recycling of waste, medical waste, wood waste, agricultural waste including agrichemicals, toxic wastes etc.)? | | | | | | | | |  | |
| Is there any additional demand for heat and electrical energy, or are there any power-consuming industrial facilities and enterprises in the area designated for the potential location of the proposed project? | | | | | | | | |  | |
| **Information about the current dumpsite** | | | | | | | | | | |
| Name of site | | | | | | | | |  | |
| Total area (km2) | | | | | | | | |  | |
| Year when disposal started | | | | | | | | |  | |
| Estimated life span remaining (Year) | | | | | | | | |  | |
| Amount of waste deposited daily (Ton/day) | | | | | | | | |  | |
| Disposal method | | | | | | | | | O = Open dumping  C = Controlled tipping (with occasional soil cover) | |
| Existence of animals on site | | | | | | | | | Yes/ No | |
| Existence of waste pickers or scavengers on site | | | | | | | | | Yes/ No | |
| Existence of open burning on site | | | | | | | | | Yes/ No | |
| Additional remarks, if any | | | | | | | | | | |
| **Information about the potential location of the proposed project** | | | | | | | | | | |
| Is there a dump for burial of waste in the area designated for the potential construction of the proposed project?  What is the life span and size of the site?  What is the height of the dumped waste?  Is there any treatment facilities, any infrastructure on site? | | | | | | | | |  | |
| Who owns the dump site, and who keeps records of the dump site in its balance sheet (accounting books)? | | | | | | | | |  | |
| What is the distance between the residential community (Asoun) and the dumpsite?  What is the average waste hauling distance (km)? | | | | | | | | |  | |
| What is the effective fee schedule applicable to the burial of municipal solid waste (MSW) in dumpsite per 1 cubic m at the nearest dumpsite? | | | | | | | | |  | |
| Will the project be constructed on the dumpsite?  What is the distance between the potential Location of the project and the operating dumpsite site (km)?  Is there a connecting road (including a type of road surface)? | | | | | | | | |  | |
| What is the effective fee for hauling 1 cubic meter of MSW? | | | | | | | | |  | |
| Are the MSW collected by municipality or private company?  Are there any effective contract with waste collecting company? | | | | | | | | |  | |
| What is the potential location of the proposed project? It is necessary to provide a layout of the land plot, topographic map, geological map  Is there any protection zone close to the site? | | | | | | | | |  | |
| Are there utility lines in the potential location for the construction of the project (water supply, power supply, sewage line)? It is necessary to provide technical characteristic of the existing utility lines. | | | | | | | | |  | |
| What is the reason for choosing the land plot for the construction of the project (current dump / availability of the land plot for a long-term lease, availability of the construction permits etc.)? | | | | | | | | |  | |
| Is there an area (if any) designated for the sorting of waste (m2)? | | | | | | | | |  | |
| **Characteristics of solid municipal generated in the region designated as the potential location of the proposed project** | | | | | | | | | | |
| Average waste weight-volume ratio (cubic meter /tons) | | | | | | | | |  | |
| Average moisture of wastes depending on a season (spring, summer, autumn, winter) | | | | | | | | |  | |
| Types of wastes delivered for treatment (commercial waste, wasted generated by homes, waste from agricultural areas) | | | | | | | | |  | |
| What is the morphological composition of municipal solid waste? | | | | | | | | |  | |
| Brands of vehicles for collection | | | | | | | | |  | |
| Presence of wood waste (trees, branches, leaves etc.) to be received at the proposed project. Approximate annual volume of wood waste (cubic meters). Brands of vehicles used to haul wood waste to the proposed project. | | | | | | | | |  | |
| **Basic parameters of the morphology of solid municipal waste.**   * + 1. If data on waste characteristics are available, please complete the following table:     2. Data collected by actual survey or by estimation? | | | | | | | | | | |
| **Parameter Description** | | | | | | | | | **Percentage** | |
| 1. Waste paper, cardboard | | | | | | | | |  | |
| 2. Discarded clothing, wiping cloths, textiles | | | | | | | | |  | |
| 3. Polymer wastes | | | | | | | | |  | |
| 4. Food waste | | | | | | | | |  | |
| 5. Wood, organic materials | | | | | | | | |  | |
| 6. Ferrous metals | | | | | | | | |  | |
| 7. Non-ferrous metals | | | | | | | | |  | |
| 8. Rubber, leather | | | | | | | | |  | |
| 9. Waste glass | | | | | | | | |  | |
| 10. Inert and construction wastes | | | | | | | | |  | |
| 11.Other materials | | | | | | | | |  | |
| **Required performance indicators for the waste proposed project** | | | | | | | | | | |
| Average annual capacity of the waste of proposed project (tons /year)? | | | | | | | | |  | |
| Peak capacity of the proposed project, m3/hour (please, indicate in what period of a year, duration of peak operation)? | | | | | | | | |  | |
| Capacity of the proposed project per shift /day, m3/hour? | | | | | | | | |  | |
| Is there any policy to standardize the vehicles and equipment used by the project? If so, please outline how this policy will be implemented. | | | | | | | | |  | |
| Does the proposed project have its own workshop to maintain and repair its vehicles and equipment? If so, how does the workshop purchase spare parts? What is the average time taken for the purchase? What is the policy on stock maintenance? | | | | | | | | |  | |
| What are the machinery used in project, including machinery owned by both the municipality (if any for collection and transport of MSW) and Contractors | | | | | | | | |  | |
| Operating system of the waste treatment proposed project, (number of shifts, work pattern per shift, 24-hour operating rules and procedures if required)? | | | | | | | | |  | |
| Optional configurations  **\*The technology is Anaerobic Digestion Proposed Project** | | - manufacturing and delivery of the proposed project;  - complete assembly and delivery of equipment;  - “turn-key” installation of the proposed project, including, design development + manufacturing of equipment + delivery of equipment + construction and installation works + equipment installation + start-up and adjustment works to put the proposed project into operation + personnel training + assistance in setting up the proposed project for routine operation + logistics…. | | | | | | | | |
| Expected economic performance indicators of the proposed project | | | | | | | | | **\*** | |
| Requirements to subsequent recovery, landfilling, (full or partial) treatment of unsorted fraction of wastes | | | | | | | | | **\*** | |
| **Requirements to project design documentation (please, mark the required items)\*\*** | | | | | | | | | | |
|  | | | Available | | | Non-Available | | | Under development | |
| Project design documentation | | |  | | |  | | |  | |
| Scheme design | | |  | | |  | | |  | |
| Working design | | |  | | |  | | |  | |
| Working design documentation | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | |
| **Problems encountered in solid waste management service in the region. Please tick appropriate spaces.** | | | | | | | | | | |
| Problem | | | | Very serious | | | Serious | Not so serious | | No problem |
| Inadequate service coverage (some people not given service) | | | |  | | |  |  | |  |
| Lack service quality (not frequent enough, spill, etc.) | | | |  | | |  |  | |  |
| Lack of authority to make financial and administrative decision | | | |  | | |  |  | |  |
| Lack of financial resources | | | |  | | |  |  | |  |
| Lack of trained personnel | | | |  | | |  |  | |  |
| Lack of vehicles | | | |  | | |  |  | |  |
| Lack of equipment | | | |  | | |  |  | |  |
| Old vehicle/equipment frequent breakdown | | | |  | | |  |  | |  |
| Difficult to obtain spare parts | | | |  | | |  |  | |  |
| Lack of capability to maintain/repair vehicle/equipment | | | |  | | |  |  | |  |
| No standardization of vehicle/equipment | | | |  | | |  |  | |  |
| No proper institutional set-up for solid waste management service | | | |  | | |  |  | |  |
| Lack of legislation | | | |  | | |  |  | |  |
| Lack of enforcement measure and capability | | | |  | | |  |  | |  |
| Lack of planning (short-, medium- and long-term plan) | | | |  | | |  |  | |  |
| Rapid urbanization outstripping service capacity | | | |  | | |  |  | |  |
| Difficult to locate and acquire landfill site | | | |  | | |  |  | |  |
| Poor cooperation by Government agencies | | | |  | | |  |  | |  |
| Poor public cooperation | | | |  | | |  |  | |  |
| Uncontrolled use of packaging material | | | |  | | |  |  | |  |
| Poor response to waste minimization (reuse/recycling) | | | |  | | |  |  | |  |
| Lack of qualified private contractors | | | |  | | |  |  | |  |
| Difficult to control contractual service | | | |  | | |  |  | |  |
| Lack of control on hazardous waste | | | |  | | |  |  | |  |
| Others | | | |  | | |  |  | |  |
| Additional remarks, if any | | | |  | | |  |  | |  |

**Dump Information Form**

**Location:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Within municipality limits?** Yes / No

Street address, if available \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Property owner:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Person(s) responsible for illegal dumping, if known:**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Phone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Size of dump in m2:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Type of material:** (circle all that apply)

tree/brush construction/demolition household trash industrial other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Distance to nearest surface water:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Type of nearest surface water:** (circle one) intermittent creek river pond/lake

**Distance to nearest occupied house:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Number of occupied dwellings within 400m radius of site:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Distance from dump to nearest road/street:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | Tons/day | Summer season | Winter season |
| Dumping to municipalities own |  |  |  |
| Dumping to another municipalities dumping site |  |  |  |
| Open burning |  |  |  |
| Composting |  |  |  |
| Dumping to agricultural area |  |  |  |
| Open burning at municipal dumping site |  |  |  |
| Other (Specify) |  |  |  |

**Human Resources**

Personnel for the proposed project’s services. In case where a person is responsible for more than 1 duty, please put the number of such persons in parenthesis.

|  |  |
| --- | --- |
| **Type of personnel** | **Number of personnel** |
| Administrator |  |
| Health officer |  |
| Public health inspector (PHI) or equivalent |  |
| Assistant to PHI |  |
| Engineer |  |
| Technical assistant |  |
| Technician |  |
| Mechanic |  |
| Mechanic’s assistant |  |
| Supervisor |  |
| Driver |  |
| Laborer |  |
| Others |  |
| Total |  |
|  |  |
|  |  |