

## Appointment of Short-Term Experts for the “Support to Reforms – Environmental Governance in Lebanon” Project (StREG)

### Terms of Reference: STE/ToR/16

**EuropeAid/134306/D/SER/LB  
Service Contract No: ENPI/2014/337-755**

<b>Description of the Assignment</b>	<i>Analysis of tools to support solid waste management in Lebanon, including (1) fiscal instruments to support recycling and (2) solid waste management charges. Recycling-related activities will include collection of data, analysis of the amount of subsidy needed to enable the industry to grow, design of fiscal instruments for implementing such subsidies, development of the legal and institutional framework for implementing them, and drafting the laws, decrees, or guidelines needed to implement them. Waste management charge analysis focuses on determining the costs to be covered, the amounts to be charged, allocation of charges among those who generate wastes, and mechanisms for collecting charges.</i>
<b>Related activity/s of the workplan</b>	<i>Activity: A.3.1</i>
<b>Expert role, category and indicative number of work days</b>	<i>Recycling industry expert (senior -national): 45 days Solid waste financing expert senior - (international): 30 days Lawyer / policy analyst (senior - national): 30 days Data collection expert (senior - national): 45 days</i>
<b>Time of assignment</b>	<i>Over a five-month period beginning February 2015.</i>
<b>Proposed expert/s</b>	<i>To be identified</i>

<b>Proposed by:</b>          <b>Dr Russell C Frost</b> <b>Team Leader</b>  <b>Date: 19/12/2014</b>	<b>Approved by:</b>          <b>Ghassan Sayah</b> <b>Project Director for MoE</b>  <b>Date:</b>
<b>Approved by:</b>          <b>Lamia Chamas</b> <b>Project Manager, Project Administration Office</b>  <b>Date:</b>	

## 1. Project information

The StREG project has been designed with the overall objective of improving the environmental performance of the Lebanese public sector through performing environmental governance, and with the purpose of:

- Creating effective capacity, specifically at the Ministry of Environment, to plan, execute and enforce environmental policy;
- Mainstreaming environmental policy through coordinating with key line Ministries.

The project comprises four major work components, each designed to achieve a specific result:

1. **Environmental inspection and enforcement strengthened** – to be achieved through undertaking the following activities:
  - A1.1 Review practice and prepare an options paper for a joint-Ministry working group;
  - A1.2 Draft new inspection and prosecution procedures in agreed sectors;
  - A1.3 Provide training to inspectors and prosecutors in using the new procedures;
  - A1.4 Identify equipment needs for evidence gathering by MoE and prepare specifications for the procurement (through different contract) of the identified equipment and associated software;
  - A1.5 Implement the new procedures.
2. **Ministry of Environment (MoE) administrative capacity improved** – to be achieved through undertaking the following activities:
  - A2.1 Establish Ministry of Environment regional Departments;
  - A2.2 Upgrade the management system of the MoE (workflow, archive and equipment inventory).
3. **Environmental fiscal instruments (EFI) developed and submitted to the Council of Ministers by the MoE** – to be achieved through undertaking the following activities:
  - A3.1 Identify suitable EFI (for Lebanon);
  - A3.2 Develop a priority action plan for introducing selected EFI into the legislative process.
4. **Environmental policy enhanced** – to be achieved through undertaking the following activities:
  - A4.1 Update the draft National Environmental Action Plan;
  - A4.2 Initiate the mainstreaming of environmental policy in agreed sectors;
  - A4.3 Equip the Inter-Ministerial Climate Change Coordination Unit with mitigation and adaption plans in agreed sectors.

## 2. Description of the assignment

The Ministry of Environment and the Government of Lebanon are interested in strengthening environmental management through economic and fiscal instruments relying on market tools rather than command-and-control regulation. In two key areas, solid waste management and quarry management, initial scoping work has been carried out to determine how such instruments are used elsewhere in the world, and how they may be of interest to address Lebanese problems.<sup>1</sup>

Based on that review, the Ministry wishes to investigate further the possibility of introducing various economic and fiscal instruments to improve solid waste management:

- Recycling credits, through which municipalities encourage recycling by offering rebates to organizations that collect recyclable material, in amounts related to the municipal savings because they do not have to collect that material as waste.
- Extended producer responsibility (EPR) for either packaging or end-of-life disposal of recyclable products such as tires, oil, electronics, motor vehicles, or other items.
- Direct subsidies to support either recycling enterprises or those who purchase products with a significant share of recycled content. These could take the form of tax credits or deductions<sup>2</sup>, subsidized loans, loan guarantees, or other mechanisms.

In addition, the Ministry is interested in the possibility of using solid waste management charges and taxes to both cover the costs of waste management and create incentives to recycle.

- Solid waste management charges through which to transfer the costs of collecting and treating solid waste to the households, enterprises, and institutions that generate it.
- Introducing tipping fees at existing landfills, so that municipalities will face a direct financial incentive to reduce trash by recycling more.
- Introducing landfill taxes that could make sense once tipping fees were in place, if a financial incentive were needed to encourage municipalities to recycle rather than bringing waste to a landfill.

The overall purpose of this assignment is to determine how these mechanisms can be introduced. To accomplish this, the assignment must carry out the detailed analyses that will be necessary to determine how (or whether) these instruments could be implemented most effectively. This will involve several tasks discussed below.

### 2.1 Data collection

In the recycling area, data collection will focus on several products that are now being recycled, that could be recycled, or that may be targeted by extended producer responsibility (EPR) requirements. Insofar as possible (but see below), the data to be

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<sup>1</sup> Those reports are available on request from the StREG project; contact Joy Hecht, EFI expert, at [jhecht@alum.mit.edu](mailto:jhecht@alum.mit.edu).

<sup>2</sup> Tax credits are amounts subtracted from the tax base prior to calculating tax owed, whereas tax deductions are amounts subtracted from tax actually owed. Thus a \$100 tax credit is worth much less than a \$100 tax deduction.

collected should provide a broad understanding of the scale, operations, and financial flows in the recycling industry, including employment, volume, and values. For general recycling, the products to be considered include (but are not limited to, should others turn out to be important) the following:

- Glass
- Plastic (PET and PVC)
- Cardboard and paper
- Aluminium cans
- Construction and demolition waste, disaggregated by type

In the area of extended producer responsibility, data collection will focus on:

- Packaging material; this may overlap with recycling of plastic and cardboard / paper.
- Tires
- Oils
- Electronics
- Household appliances
- Motor vehicles

In the solid waste generation area, data collection will focus on determining:

- how much is now spent on waste collection and treatment, including capital costs
- how much waste is generated
- the types of waste generated
- how these figures vary across a group of municipalities to be chosen at the start of the assignment (including urban and rural, those within the current Averda contracts and elsewhere)

Obtaining these recycling data will be difficult. Some of it may be impossible to obtain both because they may be proprietary and because much recycling is now carried out in the informal sector. The team will therefore be asked to collect what they can, and to think creatively about proxies in order to estimate data for which primary data cannot be obtained. Methods for obtaining data will be discussed with StREG and Ministry staff at the start of and during the assignment to ensure that all possible approaches are considered. Appendix A to this ToR provides additional information about the kinds of information that are desired in all three areas.

## **2.2 Analytical tasks and policy recommendations**

### **Analysis of recycling:**

As with the data collection, the list of analyses below is indicative; it reflects what is desired to the extent that the data are available.

- For key recyclable materials, estimate the total volume of recyclable material produced in the country annually. If spatial distribution is important, disaggregate the data as needed. (For example, transport costs are significant for construction and demolition wastes, so spatial distribution will be important, whereas this will be less crucial for plastics or electronic waste). This is likely to be based on manufacturing, import, and export data for the key products.

- For the materials that offer potential for recycling in Lebanon, review the technologies used elsewhere in the world to determine which are most appropriate, particularly given the anticipated volumes of recyclable material available, the scale of operation required to support different technologies, and the trade-off between transport costs and distribution of recycling facilities (i.e. fewer large plants with economies of scale but higher transport costs vs. more small plants with less efficient technology but lower transport costs).
- Using the data collected and the estimations made, present the cost structure for recycling by product, showing the costs of collection, transportation to recycling facilities, and transformation of the material into usable product, as well as the sale prices when the material changes hands, and so on. Where these chains of activity actually exist, this should be estimated based on the best data available given the constraints already mentioned. Where they do not exist - i.e. in parts of the country or for materials where there is not yet any recycling - this should be based on estimates from other places.
- For each product market that is potentially viable, estimate the amount of subsidy that could be needed at the enterprise level to make the activity financially viable. This will depend in part on whether the costs of both collection and recycling must be covered by the revenue from selling recycled material, or only the cost of recycling. It will also vary depending on whether recyclers must pay for recyclable material or municipalities must pay gate fees to get recycling companies to take the material off their hands.
- Estimate the monetary total cost to the country for providing the subsidy; for example total foregone taxes or total budgetary allocation for direct support through subsidized loans. If a specific group will bear that cost, identify that group and the costs they will bear (in monetary terms if practical).
- Estimate total flows of waste and money at the proposed subsidy level, the share of recyclables that we expect would in fact be recycled, how this would affect the waste streams managed by the municipalities and the amount of waste going to landfills or (if they exist) incinerators, who would carry out the collection of recyclables and who would pay the collection costs (there might be several different scenarios here). Show how this would change with different levels of subsidy (if at all).
- Determine which of the possible subsidy mechanisms (see list below) could best be used to support the industry and how it should be organized. The design of the subsidy mechanisms should ensure that those currently earning a living through recycling (particularly informal sector recycling) are not put out of work as the industry grows and the activity moves into the formal sector.

#### **Analysis of Extended Producer Responsibility (EPR):**

- Estimate the amount of material that would be reclaimed each year through EPR requirements.
- Assess the possible institutional mechanisms for requiring producers (or retailers, importers, or other suppliers) to take responsibility for the waste generated by their products. This includes consideration of how the material would get from consumers back to suppliers, what the suppliers would do with the material, whether they could provide alternate means of covering the cost of recycling without taking direct physical responsibility for their waste (as done in Europe), and how much an EPR system would cost.

### **Analysis of solid waste charges:**

- Prepare a comparative analysis of the costs of waste management in the different municipalities surveyed, distinguishing collection, different types of waste management, and capital vs. operating costs.
- Present the cost data in per-tonne and per-capita terms.
- Assess the viability of recycling credits as a way to stimulate sorting of waste at source. Estimate the amount of credit that could be provided to those who supply recyclable material, based on work on the cost of municipal waste management and the savings that would result from increased recycling.
- Consider the applicability of different conceptual approaches to solid waste charges, including principles for allocating total waste management costs between households, commercial enterprises, industry, and institutions.
- For the share of costs to be borne by households, analyse how to allocate them:
  - equal shares per capita,
  - equal shares per household (this and the previous one are not likely)
  - in proportion to another charge such as electricity, water, or land line phone service
  - in proportion to rental value of property (this will allocate more to households with larger and therefore more expensive homes)
  - in proportion to rental value of property per square meter (this will allocate more to households in expensive areas, and may be more progressive than the previous approach)
  - etc.
- Assess the institutional and administrative issues involved in introducing the different charging mechanisms.
- Evaluate phasing of the introduction of solid waste charges;
  - should they increase gradually over time and only cover the full costs in the long run, or be introduced from the start at a level to cover full costs?
  - should they be initially be imposed only on enterprises and institutions and only later on households, or should they be imposed on everyone from the start?
  - should these issues be decided nationally for all jurisdictions or should municipalities decide for themselves how to resolve these issues?

### **2.3 Subsidy mechanisms for recycling (and non-financial incentives)**

Support for recycling could come from various different fiscal mechanisms, listed below. The analysis should consider the choice among these from the perspective of which can accomplish the goal of increased recycling at least direct cost and lowest administrative cost.

- Up to a 50% income tax deduction, which could be introduced by decree under paragraph 2 of Article 20 of Law 444 on protection of the environment.
- Up to a 50% deduction of customs duties on imported equipment for recycling, which could be introduced by decree under paragraph 1 of Article 20 of Law 444.

- Up to a 50% deduction of VAT on imported equipment for environmental protection, which could be introduced by decree under paragraph 2 of Article 20 of Law 444. This would help companies with cash flow problems at the time of equipment purchase, but would not actually save money, since VAT they pay is reimbursed out of VAT collected on sales of their products or by the Treasury.
- A 100% income tax exemption for the first ten years of operation of firms producing products not manufactured in Lebanon prior to January 1980, allowed under Article 5/2, part II, of the Income Tax Law. The law places some limitations on use of this subsidy, but it may be available to support recycling plants. (This mechanism may already be available without further legal action needed.)
- The draft solid waste law, Article 26, calls for development of non-financial incentives to encourage improved solid waste management, including recycling, such as streamlined administrative procedures. A decree is to specify how such mechanisms would operate. They would in practice reduce costs to recycling companies (while increasing them to industries that do not receive these benefits), so they should be included among the mechanisms analysed.
- Direct subsidies for loans or loan guarantees for targeted industries; these would have to come from government or donor funds.

The analysis of these mechanisms must consider, in particular, how to define the sectors or products that are eligible for them so as to ensure that they are only used to support environmental protection or recycling, and cannot be used to subsidize generic equipment (such as pipes or cleaning equipment) when it is used for other purposes.

## **2.4 Final Deliverables**

### **Recycling and EPRs:**

- Recycling policy paper summarizing the data collected and the analysis carried out, and giving recommendations on (1) the forms and amounts of subsidies recommended and why and (2) the products and mechanisms for introduction of extended producer responsibility.
- Draft laws, decree, or guidelines (as appropriate) to implement recommended mechanisms.
- Clearly documented database(s) containing all of the statistical data collected, with all sources indicated, in spreadsheets and (if needed for analytical work) other formats. These spreadsheets should mask any confidential information (e.g. names of firms or individuals surveyed) so that the data within them can be made available to others as useful. Fully documented spreadsheets (linked to the former) showing all coefficients used (e.g. values obtained in interviews or from the literature), and all calculations made in order to carry out the requested analyses and estimations.
- Technical report explaining what was done, how the data, parameters and coefficients were obtained, and how the calculations were carried out. One purpose of this deliverable and the previous two is to enable anyone interested in modifying the recommended policy choices (e.g. subsidy level) or refining input parameters (e.g. on the basis of better data available in the future) to be able to modify to the spreadsheets

in order to derive new results. The other purpose is to provide the justification for the specific recommendations made in the policy paper and the draft decrees.

**Solid waste charges:**

- Paper on solid waste charges summarizing the data collected and explaining analysis carried out, the recommendations, and the arguments supporting those recommendations.
- Spreadsheet containing all data collected, clearly documented with all sources indicated, so they information can easily be used by others.

**2.5 Expertise needed**

The assignment will be carried out by a four-member team working with and reporting to the StREG EFI expert.

- National recycling expert with strong experience analysing the industry from the perspective of business and / or economics, with primary responsibility for analysis of recycling subsidies, finalizing the project deliverables, and supervising the team.
- International solid waste financing expert with primary responsibility for analysis of mechanisms for shifting the cost of SWM to households, enterprises, industry, and institutions.
- National lawyer / policy analyst with primary responsibility for policy reports and draft decrees.
- National expert with primary responsibility for collecting and organizing the data for all of the analyses on the project.

Each position is further described below.



### 3. Requested services: national recycling industry expert

#### 3.1 Duties and responsibilities

- Reports to the StREG EFI expert.
- Overall supervision of the other three team members, taking primary responsibility for coordinating preparation of the work plan and the draft reports.
- Collaborate with the other three team members and the StREG EFI expert on identifying data needs and collecting data about the recycling industry and solid waste management.
- Take primary responsibility for organizing the data to trace the flow of funds through the recycling industry. Estimate potential volumes of recyclable material and amount that is being or could be recycled.
- Estimate the amount of subsidy that will be needed in order to allow the industry to flourish, the municipal savings from recycling that could be used to provide recycling credits, and the costs that would be imposed by extended producer responsibility systems.
- Take primary responsibility for preparing the recycling analysis spreadsheet.
- Collaborate with lawyer / policy analyst in the identification of optimal legal and institutional structure for the recommended subsidies.

#### 3.2 Timetable and level of effort

The assignment is expected to take place over a five-month period (this is indicative). The expected level of effort for the recycling expert will be about 45 days.

Deliverables	Indicative Deadlines
Work plan for assignment, developed jointly with other team members	Two weeks into the period of the assignment
Brief report on work progress.	Three months into the period of the assignment.
Analysis spreadsheet, documented so as to make clear how all calculations were carried out.	4 weeks before the end of the period of the assignment
Draft reports and spreadsheets related to recycling submitted to EFI expert	3 weeks before the end of the period of the assignment
Response to comments on draft final report	1 week after receiving them.

#### 3.3 Expert profile

##### Qualifications and skills

- Education: degree in economics, engineering, business, or other field useful for analysis of the recycling industry; masters would be preferable.
- Fluency in written and spoken English and Arabic.
- Ability to organize data and analyses into spreadsheets with documentation that makes them usable by other people.
- Ability to write clear well-structured policy and technical reports in English.

##### Professional Experience

- Five to ten years of professional experience related to business aspects of the environmental protection industry in Lebanon and elsewhere.
- Demonstrated experience with the business and organization of the recycling industry.

## 4. Requested services: international solid waste financing expert

### 4.1 Duties and responsibilities

- Reports to the recycling industry expert and to the StREG EFI expert.
- Collaborate with the other three team members and the StREG EFI expert on identifying data needs and collecting data about the recycling industry and solid waste management.
- Responsible for analysing the cost of solid waste management per capita, per tonne, and in different municipalities.
- Responsible for evaluating the different designs for SWM charges, how they are allocated between households and other institutions, how they are allocated among households, and institutional and administrative aspects of their collection.
- Draft the report on solid waste management charges.
- Compile the data on solid waste charges in a well-documented spreadsheet that can be understood and used by others.

### 4.2 Timetable and level of effort

The assignment is expected to take place over a five-month period (this is indicative). The level of effort for the solid waste financing expert will be 30 days.

Deliverables	Provisional Deadlines
Work plan for assignment, developed jointly with other team members	Two weeks into the period of the assignment
Brief report on work progress.	Three months into the period of the assignment.
Draft final report on SWM charges and documented spreadsheets submitted to the EFI expert.	Three weeks before the end of the period of the assignment
Response to comments on the draft final report	1 week after receiving comments

### 4.3 Expert profile

#### Qualifications and skills

- Education: degree in economics, public policy, public administration, urban planning or policy, sanitary engineering, or other discipline relevant to this assignment; masters would be preferable.
- Fluency in written and spoken English. Knowledge of French and / or Arabic would be an asset.
- Demonstrated ability to write clear well-structured policy and technical reports in English.

#### Professional Experience

- A minimum of 10 years policy work related to solid waste management, management of urban environmental services, municipal finance, and related areas.
- Demonstrated experience working on financing of municipal solid waste management.
- Ability to organize data and analyses into spreadsheets with documentation that makes them usable by other people.
- Experience working in Lebanon and / or the region would be an asset.

## 5. Requested services: national lawyer / policy analyst

### 5.1 Duties and responsibilities

- Reports to the recycling industry expert and to the StREG EFI expert.
- Collaborate with the other three team members and the StREG EFI expert on identifying data needs and collecting data about the recycling industry and solid waste management.
- Take primary responsibility for analysing the different legal mechanisms through which subsidies could be provided, to determine which would be most efficient and effective.
- While collaborating with other team members on design of mechanisms to support recycling, take primary responsibility for recommending the institutional structure through which support would be provided.
- Take primary responsibility for analysing and making recommendations on institutional structure for EPR.
- Draft laws, decrees, or guidelines (as appropriate) to implement the recommended support mechanisms.
- Draft portions of the final reports as will be determined by the team members at the start of the project.

### 5.2 Timetable and level of effort

The assignment is expected to take place over a five-month period (this is indicative). The expected level of effort for the lawyer / policy analyst will be about 30 days.

Deliverables	Provisional Deadlines
Work plan for assignment, developed jointly with other team members	Two weeks into the period of the assignment
Brief report on work progress.	Three months into the period of the assignment.
Provide draft portions of the report to EFI expert, for integration into draft final reports.	Three weeks before the end of the period of the assignment
Provide draft laws / decrees / guidelines to be appended to policy report.	Three weeks before the end of the period of the assignment
Response to comments on the draft final report	1 week after receiving comments

### 5.3 Expert profile

#### Qualifications and skills

- Education: Lawyer certified to practice in Lebanon.
- Fluency in written and spoken English and Arabic.
- Demonstrated ability to write clear well-structured policy and technical reports in English.

#### Professional Experience

- A minimum of 10 years of finance-related public sector legal experience in Lebanon.
- Demonstrated experience analysing tax-related legal and policy issues in Lebanon or internationally.

## 6. Requested services: national data collection expert

### 6.1 Duties and responsibilities

- Reports to the recycling industry expert and to the StREG EFI expert.
- Takes primary responsibility for working with the other team members on identifying data needs and collecting data about the Lebanese recycling industry and solid waste management.
- If a structured survey of informal sector workers or firms is to be carried out, takes primary responsibility for survey design, supervision of surveyors (if needed), and management and analysis of resulting data.
- Take primary responsibility for organizing the data into well-documented spreadsheets easily usable by other people.

### 6.2 Timetable and level of effort

The assignment is expected to take place over a five-month period (this is indicative). The expected level of effort for the data collection expert will be about 45 days.

Deliverables	Provisional Deadlines
Work plan for assignment, developed jointly with other team members	Two weeks into the period of the assignment
Brief report on work progress.	Three months into the period of the assignment.
Provide draft portions of the report to EFI expert, for integration into draft final reports.	Three weeks before the end of the period of the assignment
Spreadsheet containing primary data and documentation of that spreadsheet.	Three weeks into period of the assignment
Response to comments on the draft final report	1 week after receiving comments

### 6.3 Expert profile

#### Qualifications and skills

- Education: degree in economics, statistics, public policy, or other field that can involve use of statistical data to analyse policy issues; masters would be an asset.
- Fluency in written and spoken English and Arabic.
- Ability to organize data in spreadsheets and document them appropriately.

#### Professional Experience

- A minimum of 10 years working with data on social science projects or other relevant fields.
- Demonstrated experience gathering information in the informal sector.
- Demonstrated experience designing and carrying out survey research and supervising data collection teams.
- Familiarity with the Lebanese solid waste sector an asset.

## Appendix A: Data collection

Insofar as possible, it will be of interest to collect data about a number of specific products that are now being recycled, could be recycled, or may be targeted by extended producer responsibility (EPR). These include (but are not limited to):

- Glass
- Plastic (by type if possible)
- Cardboard and paper (separated, if possible)
- Metal cans
- Construction and demolition waste, disaggregated by type
- For EPR, packaging, tires, oils, electronics, and other items that may be identified at the start of the assignment

Because much recycling is now carried out in the informal sector, by firms that do not have operating permits, and which may as a result be wary of answering questions, obtaining desired data will be difficult. It should be done, therefore, as extensively as practical given the constraints, thinking creatively about proxies and approximation as necessary. Methods for obtaining data will be discussed with StREG and Ministry staff at the start of and during the assignment to ensure that all possible approaches are considered.

The recycling data (ideally) sought for each type of material would include:

- What firms (and how many) are now operating in the recycling sector, in both formal and informal sectors?
- What products do they recycle?
- How many firms handle each product?
- What is the scale of their operations, estimated based on volume of product (by material), value of product, number of employees, or any other measure that might be possible to obtain.
- Do individual firms both collect materials for recycling and carry out the processing? Or do some firms collect materials and others recycle?
- Who buys recycled materials in Lebanon? How does the price compare with new materials? If recycled material were available, which current use of primary products could be replaced with recycled material in current Lebanese manufacturing?
- Do the recycling firms buy materials for processing from those who collect them, or are they paid to take the material from municipalities that need to get rid of it? What determines which way the money flows; does it depend on which material it is, on who does the collection and transport to the recycling plant, or on something else?
- Whom do the informal sector collectors ("scavengers") sell to? How much do they earn? Do their roles differ between the Beirut area and the rest of the country, and if so how?
- How many people are working in recycling now, in both formal and informal sectors

- Insofar as it is possible to estimate, how much of each recyclable material is collected by each sector?
- Which materials are exported for processing, to which countries?
- Which recycled material (if any) is imported into Lebanon?

In addition, basic data will be needed on municipal (or contractor) expenditures to collect and manage solid waste under the current systems in place in different parts of the country. The following data should be collected for a sample of municipalities whose composition and size will be determined at the start of the assignment.

- Expenditure (including employment, labour costs, transport costs, equipment, etc.) on waste collection.
- If the municipality owns and operates the landfill or other disposal site, expenditure on that facility.
- Tipping or gate fees paid to solid waste management facilities (landfills, sorting plants, incinerators, composting plants, etc.) not directly managed by the municipality.
- Total waste collected by type of waste (biodegradable, recyclable, other categories).

For EPR, the following data will be of interest:

- How much of each product is generated annually
- How much of it is imported vs. produced domestically
- What the responsible organization (producer, importer, retailer, etc.) might be able to do with the material if required to take responsibility for it.

Suggested data sources to investigate (not exhaustive):

- National Statistical Office, if any such data are collected through routine enterprise surveys carried out for national income accounts or through informal sector surveys.
- Labour market survey carried out by the World Bank MILES project.<sup>3</sup>
- Averda companies (Sukleen, Sukomo, and other subsidiaries or subcontractors), regarding formal sector activity in the Beirut area.
- Managers of solid waste management facilities elsewhere in the country (Zahle, Tyre, elsewhere).
- Interviews with and possibly structured surveys of scavengers and informal sector enterprises to whom they sell what they collect, both in the Beirut area and elsewhere in the country.

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<sup>3</sup> See <http://documents.worldbank.org/curated/en/2012/12/17464894/lebanon-good-jobs-needed-role-macro-investment-education-labor-social-protection-policies-miles-multi-year-technical-cooperation-program>

- Interviews with municipal governments in the Beirut area and elsewhere about trash management and recycling in their jurisdictions.
- Customs Department data (and interviews with customs officials) on imports and exports of recyclable material, recycled material, recycling equipment, and other products as relevant.
- Interviews with firms that purchase recycled material, or firms that could purchase it but do not.
- Key informants working in the recycling industry. Although individual firms will presumably be unwilling to provide detailed information about their cost structure, it is possible that key individuals (or possibly NGOs) who wish to encourage recycling in the country may be able to describe the "typical" cost structure for small enterprises of different sizes, based on their knowledge of the industry.