INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

Haiti - Post-Earthquake Reconstruction Project
Engineering Consulting Services
Damage and Needs Assessment – Transport Infrastructure

Haiti Debris Pilot Project

Baseline Census and Rapid Social Assessment of Truitier Landfill

Final Report

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SNC-LAVALIN
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<tr>
<td>C&amp;D</td>
<td>Construction and Debris</td>
</tr>
<tr>
<td>CAMEP</td>
<td>Centrale Autonome Métropolitaine d'Eau Potable</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>FC</td>
<td>Frontline Community</td>
</tr>
<tr>
<td>GoH</td>
<td>Government of Haiti</td>
</tr>
<tr>
<td>HoH</td>
<td>Head of Household</td>
</tr>
<tr>
<td>IDC</td>
<td>Integrity Disaster Consultants, LLC.</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>MSW</td>
<td>Municipal Solid Waste</td>
</tr>
<tr>
<td>OHT</td>
<td>Organisation des Habitants de Truitier</td>
</tr>
<tr>
<td>OP</td>
<td>Operational Policy</td>
</tr>
<tr>
<td>PCB</td>
<td>Polychlorinated Biphenyls</td>
</tr>
<tr>
<td>RAP</td>
<td>Resettlement Action Plan</td>
</tr>
<tr>
<td>RPH</td>
<td>Rassemblement des Paysans Haïtien</td>
</tr>
<tr>
<td>RSA</td>
<td>Rapid Social Assessment</td>
</tr>
<tr>
<td>SLII</td>
<td>SNC-Lavalin International Inc.</td>
</tr>
<tr>
<td>SMCRS</td>
<td>Service Métropolitain de Collecte des Résidus Solides (SMCRS) or</td>
</tr>
<tr>
<td></td>
<td>Metropolitan Solid Waste Collection Service</td>
</tr>
<tr>
<td>TMD</td>
<td>Truitier Municipal Dumpsite</td>
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1. INTRODUCTION

In Port-au-Prince, Haiti’s capital and major urban centre, the inefficiency of the solid waste management system represents a critical risk to public health and a key obstacle to long-term environmental management for the country as a whole. The current solid waste management system has never been fully integrated into the metropolitan public services system; instead, it is characterized by a high level of institutional instability, poor governance, limited human and financial capacity, and improper solid waste-disposal practices by urban communities. The waste management challenge for Haiti has been further exacerbated by factors such as rapid, spontaneous and uncontrolled urbanization, political instability, social upheaval, economic degradation and a drastic change in waste composition as a result of new consumption patterns and lifestyles influenced by packaged goods. Moreover, the 7.3 earthquake that shook the capital city on January 12 this year and destroyed over a quarter million homes and businesses has further compromised an already strained formal and informal waste management sector. The earthquake left an estimated 25 million cubic yards of debris that the Government of Haiti (GoH) will need to remove in the coming months as part of the reconstruction of Port-au-Prince.

In order to support the GoH’s urgent post-earthquake debris management effort, the World Bank will finance a pilot project that includes the development of an 12 hectare (30 acres) debris management site inside the 215 hectare Truitier Municipal Dumpsite (TMD), the official dumpsite and landfill for the Port-au-Prince metropolitan area.

In July 2010, the Government of Haiti, which is being financed and supported by the World Bank, commissioned SNC-Lavalin International Inc. (SLII) to conduct a Rapid Social Assessment (RSA) of populations residing and working in and around the Truitier Municipal Dumpsite (TMD) on the outskirts of Port-au-Prince. The TMD is the object of major development to receive, sort and treat solid waste and mostly debris resulting from post-earthquake infrastructure damage in Port-au-Prince. Presently, members of the communities within and around the perimeter of the TMD are actively engaging in scavenging activities to collect and sell recyclable materials within the dumpsite. The scavengers, their families and the surrounding communities are currently exposed to physical, biological and chemical hazards that present a direct threat to their health and livelihoods.

1.1 SCOPE AND OBJECTIVES OF THE RSA

The World Bank has contracted SLII to carry out a Rapid Social Assessment (RSA) of populations living inside the perimeter of the Truitier Municipal Dumpsite (TMD), as well as frontline communities with socio-economic linkages to the site.

The Strategic Assessment Report for the Haiti Debris Pilot Project, prepared by Integrity Disaster Consultants, LLC. in April 2010 and the technical specifications detailed in a World Bank document transmitted to SLII on 8 December 2010 are considered the reference project document for this RSA. It is SNC-Lavalin’s understanding that the proposed project for the
TMD to be financed by the WB, consists of an earthquake debris management project, which should not affect areas of the TMD that are not already occupied by waste.

This RSA will allow the World Bank and its government partner, the Service Métropolitain de Collecte des Résidus Solides (SMCRS), or Metropolitan Solid Waste Collection Service, to obtain a thorough snapshot of the socio-economic dynamics that govern the everyday lives of single individuals and households residing and working in and around the municipal dumpsite. The emphasis of this RSA is therefore on compiling and analyzing primary and secondary data collected and the analysis of identified issues.

Overall, this social appraisal aims to:

- Collect baseline socio-demographic data depicting the social and economic dynamics that shape and influence the population in the study area.
- Determine potential impacts of the proposed project on the living and livelihood patterns of the population in the study area.
- Confirm that involuntary resettlement, as defined by OP 4.12, will not occur as a result of the proposed Debris Management Pilot project.
- Gather, to the extent possible at this stage, preliminary data on the study area population’s views, positive and negative, regarding the proposed Debris Management Pilot project.

The RSA will also contribute to orienting further socio-economic studies and needs assessments of the population zone in and around the TMD.

The RSA targets:

- Single individuals and households residing within the perimeters of the TMD.
- Single individuals and households residing in four (4) pre-determined Frontline Communities (FC) that have strong economic and social linkages to the site.
- Single individuals and households cultivating agricultural land situated within the northern section of the TMD.

1.2 CONTENT OF THE RSA

This study includes seven chapters in addition to the present introduction:

- Chapter 2 - Study Area
  
  This chapter presents the specific study area and the communities and groups that have been identified as the focus of the RSA.

- Chapter 3 - Description of the Proposed Pilot Project
  
  This chapter summarizes the Haiti Debris Pilot project proposed by IDC in their April 2010 report and the technical specifications stated in a World Bank document transmitted to SLII on
8 December 2010. Project components are described, corresponding activities are explained and implications for scavengers and local communities are outlined.

- **Chapter 4 - Methodology**
  This chapter summarizes the sources of quantitative and qualitative data used to document social and economic conditions in the study area, and the sampling methods, approach and tools used in the field investigation programme.

- **Chapter 5 - Historical Context of TMD and communities/settlements**
  This chapter presents an overview of the background behind the establishment of the TMD and when the communities in and around the site settled in the study area. The chapter also summarizes the current social organization of the communities.

- **Chapter 6 - Socio-Demographic Profile**
  This chapter summarizes the analysis of community and household-level demographic data collected in the study area, and presents a profile of the key population and household characteristics such as gender, age, household size, household composition, levels of education, health issues, and living conditions including housing, agriculture, livestock, access to water and sanitation, waste disposal and use of electricity (the chapter also presents an analysis of the principal livelihood systems found within the study area). It is based primarily on household-level data that were collected through semi-structured consultations and individual and household questionnaires.

- **Chapter 7 – Summary of Potential Impacts**
  This chapter summarizes all potential social and environmental impacts generated by the proposed project. The RSA first takes into account any negative or positive impacts assessed and perceived (or not) by the target population during individual and household surveys, as well as community, key informant and focus group consultations. The study then considers any salient impacts resulting from the Debris Management Pilot project. The applicability of OP 4.12 is also evaluated in this report.
2. THE STUDY AREA

The total study area for the present RSA is located in the Port-au-Prince Municipality of Cité Soleil, an area well-known for its high levels of urban poverty and crime. Inaugurated in 1983, the TMD has been left unmanned and uncontrolled for over twenty years.

Two other dumpsites/landfills were temporarily opened in the 1980s (Cité l’Éternel and La Saline), but they are currently closed, due to urban settlements that have developed in and around their perimeters.

The TMD sits on an estimated 215\(^1\) ha. Only 50 ha (roughly 23 percent of the site) are currently used for dumping waste in a haphazard and environmentally risky manner. The TMD was never properly organized resulting in an intermingling of waste. The borders of the TMD are represented in Annex A1. It is important to note that no official document exists to determine the exactitude of this perimeter delineation and certain documents and maps consulted propose a different delineation. The perimeter delineation used for the purpose of this report is the one applied by IDC in its April 2010 report. Moreover, this specific delineation of the TMD site has been presented and endorsed by the site manager of the SMCRS.

The TMD is located approximately 1 km from the Bay of Port-au-Prince and 280 meters southwest from a large bend in the Rivière Grise. The TMD boundary is only approximately 140 meters from the actual riverbank. The site is located within a 30 or 100 year flood plain (difficult to corroborate, due to lack of documentation), and may be subject to significant flooding impacts.

The study area is defined by the perimeter of the TMD (215 ha total area), the Rivière Grise and four (4) satellite Frontline Communities (FC) with strong social and economic linkages to the TMD.

The four (4) FCs are defined as the following (see Annex A2):

1) FC 1 - Village des Rapatriés, located along the southern border of the TMD.
2) FC 2 - Vaudreuil, located approximately 705m from the TMD.
3) FC 3 - Marsial, located approximately 455m from the TMD.
4) FC4 - Bassan, located approximately 355m from the TMD.

Annex A3 illustrates the overall perimeter of the study area and its breakdown according to land use.

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\(^1\) While the WB document sent to SLII on 8 December 2010 with the technical specifications for the project states that the TMD has a surface area measuring 202 ha, SLII has measured it at 215 ha.
Table 2-1
Breakdown of Study Area

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (Ha)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land (inside TMD)</td>
<td>34.5</td>
<td>9</td>
</tr>
<tr>
<td>Agricultural Land (outside TMD)</td>
<td>113.45</td>
<td>31</td>
</tr>
<tr>
<td>Existing Municipal Solid Waste</td>
<td>35.9</td>
<td>10</td>
</tr>
<tr>
<td>Built Area (inside and outside TMD)</td>
<td>43.76</td>
<td>12</td>
</tr>
<tr>
<td>River</td>
<td>13.61</td>
<td>4</td>
</tr>
<tr>
<td>Non-Organized Area (inside TMD)</td>
<td>127.13</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>368.35</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

According to a Rapid Census conducted by SNC-Lavalin for this study, the community located inside the perimeter TMD is comprised of approximately 180 households and 944 people. The largest FC is Village des Rapatriés (FC1) along the southern canal border of the TMD; the remaining FCs are Marsial, Vaudreuil and Bassan which are small rural clusters of households residing North and East of the border (see Annex A2). The study area is settled by an estimated at 911 households and a total population of 4599 people.
Figure 2-1
Study Area
3. DESCRIPTION OF THE PROPOSED PILOT PROJECT

A project to use the Truitier Municipal Dumpsite (TMD) as a temporary storage and processing site for debris/rubble generated by the earthquake that struck Haiti on January 12, 2010 is currently under study.

The proposed project consists of the installation of a debris management site to manage, treat, dispose, store and exploit the various post-earthquake Construction and Debris (C&D) materials.

According to the latest technical specifications for the project sent to SLII by the WB on 8 December 2010, the project will require the use of about 12 ha of the TMD’s current site to establish various infrastructures required for the large-scale management of C&D material. The proposed pilot project will require the construction and operation of a temporary area that will allow teams to sort out and recycle debris materials. The site will be fitted out on surfaces already allocated on the TMD. The area will be leveled and will benefit from a 12 ha platform with adequate rainwater drainage, an anti-erosion fence around the platform and other designated areas, and a 3m high boundary fence around the project site to ensure access is controlled.

It is expected that the facilities will treat a large portion of post-quake debris. The site can store more than 3 million tons of debris and its processing capacity has been designed to treat 4,500 m$^3$ of debris per day. It is estimated that a volume of 10 million tons can be handled by the site over the next 10 years, with a maximum reached in the first quarter of 2012.

The project site will be operated from sun up until sun down with an average working day of approximately 12 hours. The site will be operated at night if necessary.

Materials selected from the debris will be stored in separate areas according to their size grading. Metal stocks will be stored for future marketing by the GoH. The materials processed and prepared may be harmful to the environment and human health. Appropriate measures and treatment facilities are planned to enable a product management that is appropriate and environmentally responsible. Health and safety, and environmental and social management plans will be implemented during site preparation and operation.

The proposed project will not aim to significantly alter the current management of municipal domestic waste on the TMD site. The status quo will be primarily maintained. The development of the project has minimal influence on economic activities practiced by scavengers and the communities surrounding the site, although the project’s policy of watering the grounds for dust control and extinguishing open fires may slightly alter the activities of scavengers burning through trash to facilitate the collection of metals.

To accelerate implementation of the project, key components have been planned in a way that limits social impacts, including involuntary resettlement, which would trigger the World Bank’s OP 4.12. The RSA presented in this report focuses on defining the socio-economic
and social baseline of the population in and around the project site as well as confirming that OP 4.12 is not applicable.

Annex A1 presents the project site with the various facilities that will be constructed. The following elements are included in the project:

- A temporary Construction and Debris (C&D) processing area of approximately 12 ha. The area will be fenced in to ensure the security and safety of the area.
- Screens to process the (C&D) material.
- Crushers to compress the material.
- Materials such as paper, plastic, wood, metals and other items will be extracted from the debris by hand.
- The extracted material will be stockpiled in separate areas according to size (0 to 5.1 cm, 5.1 to 10.2 cm and greater than 10.2 cm).
- The stockpiles will be stored for the GoH to sell or use.
- Metals salvaged from the C&D rubble will be stored on-site and sold by the contractor on behalf of the GoH.
- Support structures will consist of a contractor’s work area, office, storage area, tower, human remains storage, guard house, kitchen, first aid, badge area and fuel/maintenance area for heavy equipment.

The processing area portion of the site can be scaled up or down, depending on the actual flow of C&D materials.

The average distribution of building materials is estimated as follows: concrete and reinforced concrete (50%), masonry (40%), scrap iron, metals, appliances, etc. (5%) and wood, plastic, glass, paper, cardboard, etc. (5%).

Debris may contain various materials that are hazardous to the environment and may be a concern for the population’s health, such as: asbestos, PCB, lead-based paint, bulbs/ballasts, household hazardous wastes, Freon, etc. Asbestos is not expected to be a significant issue because it has not been traditionally used in Haiti’s roofing materials (IDC, 2010). Visual inspection of debris streams, awareness programs and occupational/area sampling has been suggested by IDC to enhance the quality management of asbestos programs.

The staffing requirements anticipated for the contractor to effectively manage the site are depicted in the following table:
### Table 3-1
Personnel required

<table>
<thead>
<tr>
<th>Position</th>
<th>Required</th>
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<tbody>
<tr>
<td>TMD Manager</td>
<td>1</td>
</tr>
<tr>
<td>Screening Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Deputy Screening Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Health and Security Manager</td>
<td>1</td>
</tr>
<tr>
<td>TMD Night Manager</td>
<td>1</td>
</tr>
<tr>
<td>Security – Guards - Supervisor</td>
<td>2</td>
</tr>
<tr>
<td>Security – Guards – Basic</td>
<td>12</td>
</tr>
<tr>
<td>Mechanics</td>
<td>1</td>
</tr>
<tr>
<td>Local Paramedic/EMT/Nurses Aide</td>
<td>1</td>
</tr>
<tr>
<td>Kitchen Staff</td>
<td>5</td>
</tr>
<tr>
<td>Administrative Clerical Bookkeeping</td>
<td>1</td>
</tr>
<tr>
<td>Labor – Supervisor – Team Leader</td>
<td>2</td>
</tr>
<tr>
<td>Labor – Skilled</td>
<td>10</td>
</tr>
<tr>
<td>Labor – Basic</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89</strong></td>
</tr>
</tbody>
</table>

During the project’s life-cycle, the TMD Management will benefit from some improvements (IDC, 2010 - Haiti Debris Pilot Project, Strategic Assessment Report):

- A decontamination area for trucks will be established outside the TMD’s fenced area. All equipments used within the project site will have to be regularly decontaminated.

- Manual sorting will be done on the TMD and recovered recyclable materials found will be sold by the GoH.

- The Contractor chosen for the debris management project will have to hire local labor for the community on the TMD and adjacent areas. Laborers will be paid a rate that is equal or superior to salaries fixed by the industry. While foot traffic will be allowed along the outside perimeter of the fenced off areas within the TMD, only contracted workers and approved visitors will be allowed within the fenced processing zone.

- Medical waste, sewage wastewater and sludge and storm water canal debris will be disposed of at segregated locations at the landfill until alternative disposal solutions are developed and funded.

- Environmentally sensitive waste that is encountered at the gate will be segregated and stored in temporary storage area until environmentally appropriate disposal or recycling alternatives are found.
• Wood, plastic and glass sorted at the C&D debris processing area will be transported and tipped on the landfill. The scavenger population will continue to benefit from collecting and selling recyclables that they remove from the waste.

The availability of wood, plastic and glass sorted during the C&D debris processing by the scavenger population represents an important change to the current management of the TMD. This formalization of scavenger activities will have a direct impact on the lives of the population living and working in the area. Considering that about 5% of 4,500 m³ of treated debris will be composed of wood, plastic and glass, about 225 m³ of these materials will be available to the scavenger population.

The contractor will be responsible for the maintenance of access roads to and from the MD. Maintenance will be accomplished with thanks to crushed concrete provided by the project.

Overall, it is envisioned that the proposed pilot project will have a positive impact by formalizing the management, recycling and recovery of debris, while improving the general operation of the TMD. At present, scavenging represents the only means of subsistence for vulnerable individuals and households living and working within the TMD. Discarded material on the TMD affords several female heads of household (HoH) the ability to earn an income, however meager, and ensures a meal for children that would otherwise go without. Banning scavenging activities on the TMD would not only result in social unrest but also represent a lost opportunity. Economic prospects were scarce in Port-au-Prince before the earthquake and now more than ever scavengers see their work as the only viable option. If the TMD’s operation is adapted in an environmentally appropriate manner which minimizes the health and safety hazards raised in this report, appropriate livelihood strategies could be developed and integrated into the sustainable operation of a municipal dumpsite.

Currently, PHS Group is implementing a 3.5 million USD project, financed by USAID, to clear rubble at the TMD and prepare the grounds for further developments including the studied project financed by the WB. Details have so far not been communicated to SLII.

A second project, that could include a waste management improvement project and reconfiguration of TMD, is envisaged. This second project has not been defined yet and is not taking into account in this report.
4. RSA METHODOLOGY

4.1 PRINCIPLES OF RSA STRATEGY

The fieldwork for the RSA was conducted over a 2-week period in July 2010. Surveys directly involved the participation of 387 single individuals or households\(^2\) in the study area (see Annex 1). 76 of these surveys were answered by individual scavengers (single individuals or Heads of Household (HoH) approached while collecting materials on the site.

In addition to surveys targeting single individuals and households, a rapid census of 250 households residing within the perimeter of the site and a 200m buffer zone was conducted. The 200m buffer zone was established to take into account the negative impacts that may be exerted in and around the site of the proposed project. By including a 200 m buffer zone around the perimeter of the TMD, all households directly affected by the proposed project and its associated impacts (circulation of trucks and other air quality and noise environment nuisances) were included in the census.

A rapid census of 23 households with direct ties to the 34.5 ha of agricultural land in the northern section of the TMD was also carried out by the team’s consultant agronomist with support from the national socio-economist. Key information, such as demographic data pertaining to the HoH (gender, age, location of residence), and data related to agricultural activities (dimension of land parcel, main crop, annual yield, % sold, unit price, annual revenue), were gathered.

As part of the field investigation programme, several semi-structured interviews were carried out with key informants, including local associations and authorities, church groups, the Site Manager of the SMCRS, the Project Management Team of the PHS/USAID project and representatives from World Vision.

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\(^2\) Definition of Household: For the purposes of the RSA, a household is defined as “a unit of residence, of production and of consumption.” This definition includes all the people who live together on a daily basis within the same concession, producing, cultivating and eating together and sharing a common budget.
### Table 4-1
Breakdown of RSA fieldwork completed

<table>
<thead>
<tr>
<th>Group</th>
<th>Survey and Consultation Location</th>
<th>Focus Groups</th>
<th>Community/Key Informant Consultations</th>
<th>No. Households Surveyed</th>
<th>No. of Individuals Surveyed (as Single Individuals or as Members of a Household)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Individuals and Households Residing in the Study Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Community Residing on TMD</td>
<td>x</td>
<td>x</td>
<td>71</td>
<td>383 (203 Male/ 180 Female)</td>
</tr>
<tr>
<td>2</td>
<td>FC1 - Village des Raptopriés</td>
<td>x</td>
<td>x</td>
<td>59</td>
<td>362 (171 Male/ 191 Female)</td>
</tr>
<tr>
<td></td>
<td>FC2 - Vaudreuil</td>
<td></td>
<td>x</td>
<td>62</td>
<td>355 (170 Male/ 185 Female)</td>
</tr>
<tr>
<td></td>
<td>FC3 - Marsial</td>
<td></td>
<td>x</td>
<td>61</td>
<td>341 (171 Male/ 170 Female)</td>
</tr>
<tr>
<td></td>
<td>FC4 - Bassan</td>
<td></td>
<td>x</td>
<td>59</td>
<td>354 (170 Male/ 184 Female)</td>
</tr>
<tr>
<td>Single Individuals and Households Engaging in Economic Activity(ies) on the TMD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Scavengers</td>
<td></td>
<td>x</td>
<td>n/a</td>
<td>75</td>
</tr>
<tr>
<td>4</td>
<td>Cultivators working in the agricultural zone on TDM</td>
<td></td>
<td>x</td>
<td>x</td>
<td>23</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Throughout the fieldwork, the SNC-Lavalin’s activities were guided by the following principles:

i) Collect data from a statistically significant sample size in each community or group surveyed in order to generate illustrative, accurate and representative community profiling information;

ii) Collect qualitative information to reflect the full spectrum of opinions among the different communities with varying degrees of social and economic linkages to the TMD; and

iii) Adapt RSA tools and methods to validate and corroborate information.

### 4.2 RSA METHODOLOGY

The main objective of this RSA is to evaluate the proposed project’s impacts and how they may potentially affect the population living and/or working in and around the TMD. Once this is determined, the implications for the application of OP 4.12 can be deduced.

#### General Approach

The general approach adopted to conduct the RSA focused on a participatory process, collaborating with government authorities from the SMCRS, representatives of PHS Group and World Vision working in the study area as well as with community leaders, local...
community populations and target household members. The preparation and realization of the social study was accomplished by a dynamic team composed of an international socio-economic specialist, a local socio-economist and field team supervisor, an agronomist consultant, 10 local investigators (4 women and 6 men) and 4 local data entry consultants.

The methods and tools developed to collect the information required included five major steps:

i) Desk Study: Literature review, including compilation and analysis of primary and secondary data obtained from previous private and NGO reports, studies, government sources and others;

ii) Field investigation programme, including community, focus group and key informant consultations, and individual and households surveys in the study area;

iii) Study area mapping and analysis; and,

iv) Development of a social baseline database.

4.3 DESK STUDY

The research method for this RSA included a desk study and review of a wide range of information including primary and secondary data reported by previous studies conducted by Haiti Consulting and Integrity Disaster Consultants. Secondary resources also included articles and reports on scavenging in dumpsites and landfills in other developing countries as well as articles in the press. Other sources of information have been accessed largely through internet searches. The research has provided complementary information at the national level on topics such as waste management, social development indicators, land tenure systems and livelihood systems. The sources consulted in the preparation of the RSA are listed in the Bibliographic References section of this social study.

4.4 FIELD INVESTIGATION PROGRAMME

The field investigation programme encompassed semi-structured consultations with communities, focus groups and key informants, and individual and household surveys. The qualitative and quantitative data gathered is meant to provide current baseline information on the demographic, social and economic conditions in the study area.

To summarize, the field investigation programme methodology used for this RSA consisted of:

1) Consultations with key informants (6): SMCRS workers, management team for PHS/USAID project, representatives of World Vision, church members, local authorities, other local associations or organizations, local agricultural cooperatives).

2) Consultations with focus groups/community consultations:
i. Semi-structured interviews with focus groups representing the community or a specific group living on the site or the four (4) satellite FCs outside the site (11 interviews).

ii. Semi-structured interviews with focus groups representing scavengers working on site (2 interviews).

3) Individual and Household surveys:

i. Single individuals and households residing within the perimeter of the Dumpsite (71 surveys).

ii. Single individuals and households residing in four (4) Frontline Communities (241 surveys with an average of 60 surveys per community).

4) Single individual and household surveys targeting scavengers (75 interviewed while working on site).

5) Rapid Census:

i. Single individuals and households residing within the perimeter of the TMD and a 200m buffer zone around the TMD (250).

ii. Single individual and household surveys targeting population cultivating land within the northern portion of the TMD (23).

Hand-held GPS units were used in the field to locate major community perimeters, target household clusters, and general coverage of the field investigation programme.

The following sections provide more detailed information on the design and execution of the RSA field investigation programme. Annex A2 is a clear depiction of the study area.

4.4.1 Consultations with Key Informants

Semi-structured interviews were conducted with key informants including three (3) representatives from World Vision, a member of the local Administrative Council for the Communal Section (CASEC), the management team for the PHS/USAID project and the SMCRS Site Manager for the TMD.

World Vision representatives were very cooperative and provided support during the initial scoping visits on the site. The World Vision Field Officer facilitated introductions with community leaders within the TMD and in neighboring Village des Rapatriés. A drive-through visit of Frontline Communities was conducted with the assistance of World Vision on 10 July 2010. Moreover, World Vision’s Management Team for activities in communities in and around the TMD met with SLII to explain how their programs were addressing urgent services and livelihood needs for vulnerable households in the area. Ongoing and planned activities included:
Agricultural capacity building

- Use of recycled plastic material (discarded bottles) as building material for latrines and houses
- Sale of fertilizer made from organic waste on the dumpsite
- Separation of plastics and other natural materials to make fuel (study carried out by ECHO)
- Company in US wants to set up commercial bracelet-making activity using recycled materials from dumpsite

Livestock raising

- Treating human waste in settlement ponds with the cooperation of the UN (enzymes to liquefy human waste in different ponds)
- Fish farming (use of purified water)
- Health awareness/education programs including distribution of mosquito nets
- Water, Sanitation and Hygiene activities (WASH)

Following in the footsteps of DINEPA and SMCRS, UNICEF set up a system to receive and treat human waste. World Vision now has a direct Memorandum of Understanding (MoU) with SMCRS to continue this activity.

Key recommendations for the mitigation of negative impacts affecting scavengers included:

- Provision of scavenging equipment and tools to meet minimum health and safety standards
- Registration system
- Awareness program
- Consultation program

PHS Group is also contributing to community development in the area. Representatives of the company cited their school project in Cité Soleil as a major success. They have launched a small scholarship program for children living around the TMD and have ensured transportation for beneficiaries as the school is several kilometers away.

Interviews with the SMCRS Site Manager underlined the fact that the government agency managing the TMD sees the community living inside the site as a group of squatters profiting illegally from the sale of state-owned goods. Scavenging activities on the site were described as semi-organized with informal cooperatives linked to an entrenched network of buyers and middle-men. The SMCRS representative also highlighted the fact that the TMD community harbors several criminals and fugitives from the law.
It is important to note that the both World Vision and SMCRS stated that displacement compensation financed by the Inter-American Development Bank was distributed to 100 or so families living within the perimeter of the TMD a few years ago but that the actual resettlement was never carried out. Supporting documents listing beneficiaries or other information have not been provided.

### Table 4-2
**Key Informant Consultations**

<table>
<thead>
<tr>
<th>No.</th>
<th>Consultation Participants</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M. Evans, Field Officer, World Vision</td>
<td>TMD Site, Drive through all target communities</td>
<td>10-Jul-10</td>
</tr>
<tr>
<td>2</td>
<td>Theo Huitema, Project Manager, and Kristen Sullens, Project Officer, World Vision</td>
<td>World Vision Office, Pétionville, Port-au-Prince</td>
<td>15-Jul-10</td>
</tr>
<tr>
<td>3</td>
<td>Member of Conseil Administratif de la Section Communale (CASEC) (Wilson Joseph)</td>
<td>TMD Community Meeting Area</td>
<td>20-Jul-10</td>
</tr>
<tr>
<td>4</td>
<td>Jean-Marc Racine, Project Manager, and Vincent Biscombe, Site Manager, PHS Group</td>
<td>PHS Trailer on TMD Site</td>
<td>21, 22 July 2010</td>
</tr>
<tr>
<td>5</td>
<td>Carl Vielot, Site Manager, SMCRS</td>
<td>PHS Trailer on TMD Site</td>
<td>15, 21, 22 July 2010</td>
</tr>
</tbody>
</table>

### 4.4.2 Consultations with Focus Groups/Community Representatives

The semi-structured consultations with Focus Groups and Community Representatives targeted the following:

- Focus groups representing the community or a specific group living on the site or the four (4) satellite FCs outside the site.
- Focus groups representing scavengers working on site.

Meetings were organized with various associations and groups representing the TMD residents and satellite communities. M. Georges Paul, the President of the Organisation des Habitants de Truitier (OHT) and 4 members from each of the FCs gathered together to provide information on their communities and communicate all relevant concerns regarding the proposed project. M. Serdenier Calixte, President of the Rassemblement des Paysans Haitien (RPH) and 4 members from Village des Rapatriés were also consulted.

Generally, feedback concerning population numbers and demographics was unreliable and contradictory. For many households in the FCs, agriculture is a primary economic activity and economic linkages to the TMD are not viewed as central to their daily lives. Nevertheless, local men and women participating in Focus Groups representing Bassan and Vaudreuil FCs were quite vocal regarding their disappointment concerning the lack of employment resulting from the USAID project on the TMD implemented by PHS Group. This view was echoed by several other community representatives including the Rev. Etienne in Marsial and the Rev.
Noel in Bassan. Table 4-3 shows all Focus Group and Community Representatives consultations carried out during the field investigation programme.

**Table 4-3**
Focus Group/Community Consultations

<table>
<thead>
<tr>
<th>No.</th>
<th>Consultation Participants</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>President (Georges Paul) from the TMD site and 4 Members of the Organisation des Habitants de Truitier (OHT) from each of the 4 FCs</td>
<td>TMD Community Meeting Area</td>
<td>20-Jul-10</td>
</tr>
<tr>
<td>2</td>
<td>Rev. Etienne, Coordinator of local association CEAH</td>
<td>Marsial Communal Meeting Area</td>
<td>21-Jul-10</td>
</tr>
<tr>
<td>3</td>
<td>Lucner Dorsainvil, Boiler Maker/Artisan</td>
<td>TMD Site Small Shop</td>
<td>22-Jul-10</td>
</tr>
<tr>
<td>4</td>
<td>Bassan Focus Group (3 local men)</td>
<td>Resident's House in Bassan (Arnel Joseph)</td>
<td>23-Jul-10</td>
</tr>
<tr>
<td>5</td>
<td>Rev. Noel, Pasteur for Church in Bassan</td>
<td>Bassan Church</td>
<td>23-Jul-10</td>
</tr>
<tr>
<td>6</td>
<td>President (Serdener Calixte) of Rassemblement des Paysans Haitien (RPH) and 4 Members from Village des Rapatriés</td>
<td>Village des Rapatriés Meeting Area</td>
<td>24-Jul-10</td>
</tr>
<tr>
<td>7</td>
<td>Vaudreuil Focus Group (2 local men and 1 local woman)</td>
<td>Resident's House in Vaudreuil (Jules Antoine)</td>
<td>24-Jul-10</td>
</tr>
<tr>
<td>8</td>
<td>Focus Group of 10 Scavengers Working on TMD (3 female and 7 male)</td>
<td>TMD Site</td>
<td>26-Jul-10</td>
</tr>
<tr>
<td>9</td>
<td>Focus Group of 5 Scavengers Working on TMD (all male)</td>
<td>TMD Site</td>
<td>26-Jul-10</td>
</tr>
<tr>
<td>10</td>
<td>Representative of GS Wholesaler (Saintono Fils Aimé)</td>
<td>TMD Site</td>
<td>26-Jul-10</td>
</tr>
<tr>
<td>11</td>
<td>Association des Planteurs de Banane Biologique Moléard-Vaudreuil (APBPBMV)</td>
<td>TMD Site</td>
<td>30-Jul-10</td>
</tr>
</tbody>
</table>

Most participants in these consultations were not well-informed on the details of the proposed project and, as a result, it was difficult to gauge their views on the activities and potential impacts. Most of their opinions pertained to the ongoing USAID project on the TMD. The SLII team prepared a concise description of the project that would be understood by local residents. However, more insight on project activities is needed at the local level in order to ensure that potentially affected populations are consulted on their opinions and concerns.

**4.4.3 Key Informants/Focus Group/Community Consultation Guide**

The objective of the key informant, focus group and community consultations was to obtain key information on each community or group. The consultation guide (Annex C1) included the following themes and questions:

- Community historical overview
A specific consultation guide (Annex C2) was prepared for the scavenger Focus Groups in order to ensure a more in-depth examination of their activities. The following themes were addressed:

- Demographic information
- Housing
- Economic Activities
- Migration patterns
- Water
- Education and literacy
- Health services
- Livestock
- Nutrition
- Presence of associations and interest groups (youth, women and others)
- Community development

4.4.4 Individual and Household Surveys

In order to facilitate the comparative analysis of collected data in the study area, four (4) relatively homogenous groups were identified on the basis of the geographic location of target households and the socio-economic linkages to the TMD site. The following groups were proposed:

**Group 1:** Single individuals and households residing in the community within the perimeters of the TMD.

**Survey Location Option:** Community within TMD.

Rapid Census targeting this community and other households within a 200m buffer zone around the TMD was also conducted.
Group 2: Single individuals and households residing in the Frontline Communities.

Survey Location Options:
1. FC 1 - Village des Rapatriés
2. FC 2 - Vaudreuil
3. FC 3 - Marsial
4. FC4 - Bassan

Group 3: Single individuals and households working as scavengers on the TMD.

Survey Location option: Surveyed while collecting materials on the TMD.

Group 4: Single individuals and households working in the agricultural zone within the TMD.

Survey Location: Group consultation and rapid census conducted on the cultivated land.

4.4.4.1 Surveyed Single Individuals and Households

a. Single Individual and Household Surveys (Community within the perimeter of the TMD and target FCs) (Group 1)

Single individual and household survey interviewees were chosen randomly and in accordance with presence and availability during the survey period. The interviewers were told to divide into two groups and start questionnaire interviews from separate survey epicenters.

For the rapid census of single individuals and households residing on the TMD and within a 200m buffer zone around the site, interviewers were told to systematically work the existing grid of small lanes between housing units. The southern delineation used was the canal dividing the community of the TMD and Village des Rapatriés. The buffer zone on the southern side of the road near the entrance to the TMD was settled in a more sporadic manner. As a result, interviewers were asked to mobilize these households and conduct the census in an organized grouping so as to ensure that the entirety of the population was accounted for.

b. Single Individuals and Households Residing in the Frontline Communities (Group 2)

Similarly to surveys conducted for Group 1, individual and household survey interviewees for Group 2 were chosen randomly and in accordance with presence and availability during the survey period. The interviewers were told to divide into five groups of two people (four interviewer groups were male and female and one was male and male) and start questionnaire interviews from scattered survey epicenters.

c. Single Individual and Household Surveys (Scavengers) (Group 3)

Since the terrain of the TMD is vast and safety was an issue for investigators, snowball sampling or referral methods were used to identify interviewees among the scavengers working on site.
d. Single Individual and Household Census of Population Cultivating the Section of Agricultural Land within the TMD (Group 4)

A rapid census of 23 cultivators, land owners and occupants was conducted for the 34.5ha section of agricultural land on the TMD. The national socio-economist worked closely with an agronomist consultant and two investigators in order to mobilize individual stakeholders and agricultural associations in the area. The census was conducted by using both snowball sampling and by organizing a meeting gathering relevant cultivators.

4.4.4.2 Sampling of Single Individuals and Households

Using the satellite imagery to estimate the number of households in each community, a sample size was established for each surveyed community to ensure that at a 95% confidence level, the sampling margin of error (or confidence level) would be around 10% or less. Table 4.4 presents target populations and sample sizes.

<table>
<thead>
<tr>
<th>Group</th>
<th>Name of Community</th>
<th>Number of households (estimation)</th>
<th>Sample Size</th>
<th>% Sample Representation</th>
<th>% Sampling Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community on TMD Site</td>
<td>180¹</td>
<td>71</td>
<td>39</td>
<td>9.1</td>
</tr>
<tr>
<td>2</td>
<td>FC 1 - Village des Rapatriés</td>
<td>250¹</td>
<td>59</td>
<td>23</td>
<td>11.3</td>
</tr>
<tr>
<td></td>
<td>FC 2 - Vaudreuil</td>
<td>215¹</td>
<td>62</td>
<td>29</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td>FC 3 - Marsial</td>
<td>148¹</td>
<td>61</td>
<td>41</td>
<td>9.6</td>
</tr>
<tr>
<td></td>
<td>FC 4 - Bassan</td>
<td>118¹</td>
<td>59</td>
<td>50</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Scavengers²</td>
<td>150³</td>
<td>75</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Cultivators on the northern agricultural section of TDM²</td>
<td>70⁴</td>
<td>23</td>
<td>33</td>
<td>16.6</td>
</tr>
</tbody>
</table>

1. The number of households was estimated by counting the number of houses on high resolution satellite imagery. It was assumed that each house was occupied by one household. It may be important to consider that some buildings are used for other purposes (stocking, small business, etc.) or are perhaps left unoccupied due to damage from the earthquake. This consideration would have the effect of increasing the sample’s representative level.

2. Single individuals and households considered part of Group 3 (Scavengers) and Group 4 (Cultivators on the northern agricultural section of TDM) may live within the TMD site (Group 1) or within one of the Frontline Communities (Group 2). Figure 4-2 shows that 21 surveyed scavengers declared themselves residents of the TMD site community and 31 surveyed scavengers residents of one of the FCs. Figure 4-1 shows that 1 surveyed...
cultivators on the northern agricultural section of TDM declared himself as a resident of the TMD community and 13 cultivators on the northern agricultural section of TDM are residents of one of the FCs (5 Vaudreuil, 1 Marsial, 7 Bassan). The SLII team tried to ensure that the surveyed scavengers were not previously targeted during the survey period for Group 1 or Group 2.

3. The number of scavengers on the TMD site at any given time is unknown. During the period of the field investigation programme for this RSA, the average number of scavengers working on the site could be roughly estimated at 150.

4. An estimated 70-80 cultivated parcels were counted on a high resolution satellite image of the 34.5 ha agricultural zone in the Northern section of the TMD. The 23 single individuals and households included in the census were found by asking the cultivators to gather on a specific day at a specific time. None actually live on the cultivated parcel. It is unknown how many cultivators (single individuals or households) are involved in cultivating the 34.5 ha of land.

**Figure 4-1**

![Group 4 (Cultivators on the northern agricultural section of TDM) - Declared Location of Residency](source)

Source: SLII July 2010 Survey
Within each community and group (scavengers), single individuals and households were selected randomly but investigators were told to keep in mind the need to ensure representation of: (i) household sizes; (ii) good repartition of households covering a reasonable portion of community surface area; and (iii) agricultural and livestock raising activities.

While the study was designed within a methodological framework geared towards the generation of quantitative statistics, qualitative instruments (observations, semi-structured interviews with community leaders, key informants and focus groups) were used to corroborate and complement the empirical data gleaned through quantitative survey techniques (questionnaires). Furthermore, the qualitative data collected provided valuable insight and contextual meaning, and deepened the interpretation and analysis of tables and figures generated through the use of statistical techniques (extracted from database). All primary data collected through semi-structured interviews was analyzed for content and accuracy in order to prevent the introduction of erroneous information into the results of the RSA.
4.4.4.3 Individual and Household Survey Questionnaire

A standard survey questionnaire was prepared to collect baseline data from all surveyed single individuals and households. The questionnaire (Annex C3) was labeled by Group (1, 2 and 3) and survey location.

All questionnaires were identical to ensure the team’s ability to analyze and compare data. The standardized questionnaires were divided into 11 major categories of information, namely:

1) Household demographic data: origins and composition of each household and its members, including age, gender, relationship to household head, location of residency, years spent at current residence, tenure, level of education and literacy, employment situation, principal and secondary activities.

2) Living conditions: the tenure and type of housing or other occupied by the household including dimension, number of rooms, principal building material used, the presence of latrine facilities, and whether it was damaged during the earthquake.

3) Agricultural land: the tenure, type of harvest, dimension of land holding, and annual revenue from selling crops.

4) Livestock: number and types of animals raised, use of animal products for household consumption and/or sale and revenue.

5) Type of work inside (collecting glass bottles, metal, plastic bottles, transportation of waste or recyclable materials, triage, jobless, other) or outside the TMD, hours worked per day, days worked per month, and revenue generated from work per day on average.

6) Education: Summary of number of children attending school and the distance from the residence to the school.

7) Water: Description of the main potable water supply.

8) Health: Summary of health issues faced by the household and health facilities visited.

9) Nutritional health: Summary of items consumed by the household and their origins.

10) Other information: 1. Electricity use in the household, 2. Waste disposal method used.

11) Movements in and out of the TMD: Summary of regular outside movements residents of the TMD undertake, method of transportation, and reasons behind in-migration to the TMD.

Open-ended questions: 3 questions were posed to draw feedback from interviewees concerning their knowledge and impressions of the proposed project as well as the positive and negative impacts they believe it will have on their daily lives.
4.4.4.4 Household Survey Process

The investigation team for the field investigation programme was composed of an international socio-economic specialist, a local socio-economist and field team supervisor, an agronomist consultant, 10 local investigators and 4 local data entry consultants.

The individual and household surveys were generally conducted in each community following the community consultations. Due to the limited timeline of the field investigation programme, however, the community consultations and individual/household surveys were at times conducted simultaneously.

4.4.4.5 Limitations of Field Investigation Programme

In considering the results of the field investigation programme, there are some constraints and limitations that affected the RSA, including those related to: (i) data availability and reliability; and (ii) the analysis and interpretation of the data. For a variety of reasons, some of the data collected is either incomplete or fragmentary. While this information is difficult to use from a scientific viewpoint, it remains useful for comparative analysis purposes. For example, it is not always possible to quantify revenue for such an informal sector. Similarly, information provided by the RSA respondents in semi-structured meetings and interviews was difficult to corroborate and at times contradicted the quantitative data collected through survey questionnaires.

To address these types of constraints, the SLII team worked to establish a clear understanding of the social, cultural and economic conditions in the study area and to prioritize data in a manner which presents the fairest, most reliable interpretations. Nevertheless, it is important to mention that many respondents could not or would not provide answers to survey questions and the SLII team had to deal with a high incidence of unverifiable data that may have been grossly inaccurate.

Summary of major constraints:

- Lack of Trust

The population living on the site has seen foreigners come and go over the last two decades. What many describe as a legacy of broken promises made by the government and international agencies has led to a sense of distrust vis-à-vis outsiders. This attitude has been further amplified by the fact that the surveyed population believes that the PHS-USAID project has not injected any incomes into the local community since the labor force on site was imported from a previous project outside the zone. To a certain extent, this distrust made SLII’s census activities more difficult as the field investigation team only benefitted from a tentative social license to operate in the area.

- No Previous Information/Sensitization Campaign

It became clear from the outset of the field investigation programme that targeted communities and scavenger groups had either no knowledge of the proposed project or were
misinformed. While it was clear from the ongoing work being done on the TMD by PHS Group with financing from USAID that the site was the object of major development, most single individuals and households surveyed needed to be told exactly what the proposed project consisted of before they could provide any type of feedback. This presented a challenge for investigators who were given a written summary paragraph describing the project in a way that could be understood by communities. The SLII team made efforts to conduct a rapid information campaign among the Focus Groups during community and scavenger group consultations, but confusion on the exact details of the project remained and several questions from the population could not be answered without the presence of those that had drafted the project document. This is further discussed in Section 5.13. Moreover, the SMCRS representative was not willing to participate in any consultations with the target communities as he deemed their presence on the TMD site illegal.

- Length of Household Surveys

The household survey questionnaire is extensive and requires time. As a consequence, the level of concentration of most respondents varied over the course of the interview. As their concentration waned, people’s responses became less precise and the quality of the information obtained tended to decline. The challenge for the field team was to obtain as much valuable information as possible within a relatively short time frame. This was particularly true for Group 3 (Scavengers) since the investigators had to interrupt them while they worked. As trucks with debris and recyclable materials entered the site, many interviewees lost interest and walked away in order to dig in fresh trash.

- Economic Activity Data

Lack of accuracy in responses was particularly acute with respect to household income. Data collected, including data from official sources, are often unverifiable, incomplete or fragmentary. This constraint was particularly prevalent when attempting to ascertain information on revenues and expenditures, in turn affecting the SLII team’s capacity to quantify some information on economic activities of the target groups.

- Lack of Accurate Information on Population Numbers and Land Tenure

The study area for this RSA was relatively compact and well defined. Nevertheless, accurate baseline data pertaining to population numbers for Frontline Communities was difficult to ascertain and at times contradictory. This was particularly true for data concerning land tenure.

Information on land ownership and production was often highly sensitive and difficult to collect in the context of this RSA. This was particularly true for single individuals and families working as cultivators in the agricultural zone within the northern section of the TMD. The land within the perimeter of the TMD is owned by the state and, technically, the cultivators harvesting bananas and other crops on this land are illegal croppers.

- Possible Motivation to Provide False or Inflated Data
While the SLII team made it clear during community consultations and surveys that this study aimed at gathering baseline data to orient future studies of the area and ensure that potential impacts from the proposed project did not affect living conditions or livelihoods negatively, the population continued to assume that they could eventually gain something from participating in the surveys. False information on the size of the household and other demographic information may have been provided. This could also be true for data pertaining to monthly expenditures and incomes, which seem to have a high incidence of inflation. This may be due to the fact that the population assumed they would be compensated for loss of income and/or have some of their expenditures remunerated.

4.5 LAND MAPPING METHODOLOGY

A detailed land use mapping was carried out within the study area in order to document the distribution of communities and land uses. Detailed mapping of land uses was carried out at a scale of 1:10,000, using high resolution satellite images. The methodology integrated various steps, including: (i) the visual interpretation for land use classification; (ii) the visual interpretation of the satellite images; and (iii) fieldwork to validate the initial photo-interpretation.

The high resolution satellite photographs and topographic data used for the land use analysis were taken in January 2010, after the earthquake.

The perimeters of the TMD site, as well as those of each community surveyed, were drawn. The aerial plan for the proposed project was superimposed onto the aerial satellite map in order to clearly examine whether any encroachment on agricultural land or other populated/built areas would take place.

4.6 SOCIAL DATABASE

A range of socio-economic data was collected from a total of 387 single individuals and households living and working in the study area. In addition, a rapid census was conducted for 250 single individuals and households residing on the TMD and within a 200m buffer zone, as well as 23 cultivators, occupants and owners associated with the agricultural land in the 34.5 ha northern section of the TMD. Data collected from individual and household surveys have been integrated into a comprehensive Microsoft MS-Access database.

A small team of four data entry specialists was hired to input, store and manage the data. Quality control procedures were set in order to ensure an appropriate workflow for the field to the interpretation of the data and to avoid blatant errors and/or inconsistencies related to data compilation and manipulations.

The social database has been used to extrapolate representative figures and generate key socio-economic statistics concerning the survey target groups. For certain socio-economic data parameters, the qualitative data collected were considered unreliable or grossly inflated. These data were either excluded from the analysis conducted in order to prevent the distortion of accurate data. For this reason, it is possible that some calculated averages and
representative statistics generated from survey data does not include data for all 387 single individuals and households surveyed. It is also possible that a varying number of single individuals or households surveyed were not willing or capable of providing certain data and the analysis of data is based on a smaller subset of surveys than the total of each group. This holds particularly true concerning the analysis of individual/household expenses and revenues (either from crops or informal work such as scavenging). Overall, the aim was to ensure that all data, figures and statistical gleanings remain representational.
5. HISTORICAL CONTEXT OF TMD AND COMMUNITIES

5.1 BACKGROUND ON CITÉ SOLEIL

The residents of Cité Soleil live on roughly 2 km\(^2\) of filled wetland which extends into the Bay of Port-au-Prince. The site is virtually flat and sits at the outlets of major drainage canals from the metropolitan areas of Port-au-Prince and Delmas. Approximately 200,000 poor, urban dwellers live in this area. They exist without access to a treated water supply, wastewater collection, solid waste removal, or other basic municipal services.

Cité Soleil is situated to the northwest of central Port-au-Prince. The area is bounded on the north by Rue Vulcain, and a housing scheme, and the Projet Drouillard, to the south by the former HASCO sugar processing facility, to the east by National Route No. 1, and to the west by the Bay of Port-au-Prince (see Figure 2.1). Cité Soleil is traversed east to west in the northern section by drainage canal St. George, a principal drainage canal for metropolitan Delmas. In its southern section, it is traversed east to west by drainage canal E.H. also known as Canal Graisse, a principal wastewater conduit for Cité Soleil and the industrial area to its east. The community is sliced north to south by an abandoned rail line which formerly served the HASCO facility.

The city is composed of seven large zones. Interviews conducted during fieldwork in the study area indicate that most single individuals and households have a strong sense of identification with their respective areas of residence within Cité Soleil and can easily indicate the boundaries between communities.

The area’s growth was rather slow after the initial construction of lodgings for 52 families in 1958. The major influx of people to the central part of Cité Soleil occurred between July and September of 1966 after a fire in the adjacent La Saline community. At that time, 1,197 houses were built and designated Cité Simone.

Since 1973, the region has undergone a consistent and progressive influx of new residents. Today, the zones have essentially grown together and it is difficult to specifically delineate their boundaries. The total population of Cité Soleil has been estimated by a number of sources in recent years. The 2009 population figure presented by the Institut Haïtien de Statistique et d'Informatique indicates that the population of Cité Soleil is now 241,055\(^3\).

The environmental problems in Cité Soleil are severe. Open areas are filled with solid waste. Drainage canals carry both industrial and household waste from outside the area.

5.2 BACKGROUND ON TRUITIER MUNICIPAL DUMPSITE, CITÉ SOLEIL

The Truitier Municipal Dumpsite (TMD) is located in the Cul-de-sac plain approximately 8 km north of downtown Port-au-Prince. According to the Ministry of Public Works, which oversees the SMCRS, the site occupies 215 ha. Approximately 94 ha are designated for dumping, 50

\(^3\) Source: [http://www.citypopulation.de/Haiti.html](http://www.citypopulation.de/Haiti.html)
ha are reserved for cover material and 16 ha are used to store tools and equipment. The landfill is divided by open canals and a 1.3 kilometer road provides access to trucks. This 1.35 km section of road leading up to the TMD was rehabilitated by a Brazilian firm in 2009, with financing from the Inter-American Development Bank. The TMD is the sole official dumpsite in Port-au-Prince and, according to government officials, has an additional 10-15 years of service.

The TMD was inaugurated in 1983, when the Government of Haiti released a Presidential Decree declaring the Truitier site as public land (see Annex D for record of Presidential Decree in the Haitian Monitor). The Haitian American Sugar Company (HASCO) had been suffering losses and sold the site to the Meuse family in 1981 as the local market was flooded by less expensive contraband sugar, coming mostly from the Dominican Republic. Termination of HASCO activities in the area affected more than 3,000 full-time employees, and almost 20,000 people, either planters or people involved in seasonal activities. Many families left the area, but most stayed and began banana plantations on the 215 ha of land belonging to the government. There was an influx of families into the area between 1983 and 1985, as the TMD began receiving waste and scavenging became an important economic activity for communities in and around the site.

5.3 SOLID WASTE MANAGEMENT INDUSTRY IN PORT-AU-PRINCE

Pre-earthquake Port-au-Prince produced approximately 4,000 cubic meters (m³) of solid waste per day; 300 m³ of which is collected by the Metropolitan Service of Waste Collection (Service Métropolitain de Collecte des Résidus Solides, or SMCRS) and a small number of private waste collection companies. As a result, solid waste is accumulating in the streets and alleyways of Port-au-Prince and its surrounding neighborhoods. The garbage eventually builds up in drainage canals and creates blockages. The subsequent overflow during periods of heavy rain accelerates the deterioration of the road network and exacerbates traffic congestion. The Government of Haiti has found itself with virtually no funds to normalize essential operations or provide basic services to the Haitian population.

The formal solid waste sector in the greater metropolitan area of Port-au-Prince mainly consists of two (2) private companies and one state agency (SMCRS):

- The private company “Pyramide.”
- The private company “Bouchard.”
- The SMCRS (Service Métropolitain de Collecte des Résidus Solides).

The SMCRS, established in 1981 by the Government of Haiti, is mandated to manage the collection and disposal of solid waste generated in the greater Port-au-Prince area. The service was shut down twice and has been placed under the supervision of several government ministries over the last 29 years.

The solid waste management situation in the metropolitan area of Port-au-Prince is chronically poor, as the SMCRS suffers from insufficient capital investment, ineffective
maintenance of equipment, scarce operating revenues, and inconsistent management. Moreover, local municipal government efforts are inadequate to offset SMCRS shortcomings.

5.3.1 Solid Waste Production

Daily waste production per person in greater Port-au-Prince is situated between 250 kg and 300 kg. More recent data (pre-earthquake) has not shown any significant increase in solid waste generation in the capital area. Pre-earthquake annual waste production was estimated at 375,000 tons for 2.5 million inhabitants, which roughly represents 1,027 tons per day. Considering the tremendous amount of waste and debris resulting from the earthquake damage, this figure has significantly increased since January 12, 2010.

5.3.2 Solid Waste Composition

The clear lack of recent literature concerning solid waste composition in Haiti, particularly in the capital, presents a challenge. Figure 5-1 depicts the composition of the waste stream in the TMD as reported by Haiti Consulting in their 2008 study.

Figure 5-1
Waste Composition at Truitier Municipal Dumpsite as witnessed in May 2008

![Composition of Waste Dumped on the TMD](image)

6. SOCIO-DEMOGRAPHIC PROFILE OF THE STUDY AREA

This chapter presents the socio-demographic profile of the single individuals and households targeted in the study area.

The principal data sources include the community consultations and, more specifically the individual and household surveys with closed and open-ended questions, which were conducted during the field investigation programme in the study area.

6.1 POPULATION DEMOGRAPHIC CHARACTERISTICS AT NATIONAL LEVEL (CENSUS 2003)

The population characteristics in Haiti (as reported in the 2003 and 2005 *Enquête sur les conditions de vie en Haïti* (ECVH 2003, 2005), Institut Haitien de Statistique et d'Information, and the 2009 Grandes Leçons Sociodémographiques tirée du 4ᵉ Recensement General de la Population et de l'Habitat (RGPH), Institut Haïtien de Statistique et d'Information, or IHSI) emphasize the following salient features:

- The urbanization rate for Haiti can reach up to 36%, with the greater metropolitan area of Port-au-Prince accounting for 22% of the national population, and more than 60% of the urban population.
- Women make up 52% of the country’s total population; in urban zones, women constitute 54% of the population as opposed to about 50% in rural areas.
- Haiti’s population is characterized as very young, with one third of its citizens under 15, and only 5% over 65.
- The dependency ratio for Haiti is 71.5 (3,490,745 citizens under 15 and over 64/4,883,005 citizens between 15 and 64 x100).
- 50% of the total population is less than 20 (the average national age is 25 and the national median age is 21).
- Life expectancy is 58 (compared to an average of 75 for Latin America and the Caribbean).
- 53% of Haitians households are headed by females. In urban zones such as Port-au-Prince this number can climb to 64%.
- 38.2% of the population of 15 or older are single and 45% are married or in informal unions.
- 58.3% of Haitians are Catholic and 34% of the population is Protestant (Baptist, «Église de Dieu» and Pentecôtal are the most common denominations).

6.2 DEMOGRAPHIC COMPOSITION IN STUDY AREA

6.2.1 Population

The study area is situated in the Communal Section (*Section Communale*) 1ᵉʳ Vareux, which occupies the Western extremity of the Commune of Delmas.
Table 6-1 presents the official population statistics available through the IHSI subsequent to the latest census conducted in 2003. This data is to be interpreted as representative, as it is important to consider that the demography of Port-au-Prince has undergone significant changes since the January 2010 earthquake.

<table>
<thead>
<tr>
<th>Commune of Delmas (2003)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>126,948</td>
<td>281,302</td>
<td>322,909</td>
<td>604,211</td>
</tr>
<tr>
<td>Communal Section of 1ère Varreux (2003)</td>
<td>72,716</td>
<td>79,022</td>
<td>151,738</td>
</tr>
<tr>
<td>Study Area (2003)¹</td>
<td>326</td>
<td>765</td>
<td>1,510</td>
</tr>
<tr>
<td>Study Area (2010)²</td>
<td>911 ³</td>
<td>911 ⁴</td>
<td>4,599 ⁵</td>
</tr>
</tbody>
</table>

¹ The study area corresponds approximately to sectors No. 489 and 493 of the 2003 IHSI census.
² SLII July 2010 Survey.
³ The number of buildings has been estimated with the use of high resolution satellite imagery.
⁴ The number of households has been estimated by counting the number of buildings on high resolution satellite imagery. It has been assumed that each building is occupied by one household.
⁵ It is estimated that each household has an average of 5 members.

The study area is settled by a population estimated at 4,599 individuals or 911 households. Table 6-2 presents the distribution of population in the five areas targeted through the RSA. Annex A2 shows the exact location of the communities and groups targeted.

<table>
<thead>
<tr>
<th>Location</th>
<th>No. Buildings¹</th>
<th>No. Households²</th>
<th>Total Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community on TMD Site</td>
<td>180</td>
<td>180</td>
<td>944</td>
</tr>
<tr>
<td>FC 1 - Village des Rapatriés (Northern Sector)</td>
<td>250</td>
<td>250</td>
<td>1,250</td>
</tr>
<tr>
<td>FC 2 - Vaudreuil</td>
<td>215</td>
<td>215</td>
<td>1,075</td>
</tr>
<tr>
<td>FC 3 - Marsial</td>
<td>148</td>
<td>148</td>
<td>740</td>
</tr>
<tr>
<td>FC 4 - Bassan</td>
<td>118</td>
<td>118</td>
<td>590</td>
</tr>
<tr>
<td>Total</td>
<td>911</td>
<td>911</td>
<td>4,599</td>
</tr>
</tbody>
</table>

¹ Except where a rapid census was conducted, the number of buildings has been estimated with high resolution satellite imagery.
² The number of households has been estimated by counting the number of buildings on high resolution satellite imagery. It has been assumed that each building/house is occupied by one household.
³ It is estimated that each household has an average of 5 members.
6.2.2 Gender Ratio in Study Area

Survey data showed that the population distribution by gender in the whole study area is split down the middle (Figure 6-1 and 6-2). This reflects the most recent national statistics, which report that women make up 52% of the population in Haiti as a whole and 54% in urban zones (RGPH 2003). While the study area is technically located in a municipality of Port-au-Prince and therefore considered urban or peri-urban, the living conditions resemble more those of rural communities, for which women constitute 50% of the population on average in the last census (RGPH 2003).

**Figure 6-1**

![Total Surveyed Population by Sex](source.png)

Source: SLII July 2010 Survey

**Figure 6-2**

![Total Surveyed Population (All Individuals and Household Members) by Sex and Group](source.png)

Source: SLII July 2010 Survey
6.2.3 Household Composition in Study Area

According to the last national census (RGPH 2003), 41.2% of Haitian households have 4 to 6 members, making the average Haiti household size 4.5. This figure remains consistent across rural and urban environments throughout the country.

Extended households (38%) and nuclear households (25.7%) constitute the two main organizational structures for the Haitian household. Single parent Haitian households are more frequently lead by a female (18.4%) than a male (4.6%) parent. The same is true for extended families (41.6%, with female Heads of Household as against 33.7% male) (RGPH 2003).

Description of typical Haitian household structures:

- **Nuclear Household**: composed of a male and female couple (HoH and spouse/partner and their children).
- **Nuclear Household with No Children**: composed of a male and female couple (HoH and spouse/partner).
- **Single-Parent Nuclear Household**: composed of a HoH and his/her children.
- **Extended Household**: composed of a nuclear household and relatives/extended family.
- **Single-Parent Extended Household**: composed of a HoH, his/her children and/or relatives/extended family.
- **Complex Household**: composed of a household with some members that are not related to the HoH.

Figure 6-3 gives a clear representation of the types of households found in the study area. A slight majority (36%) are nuclear families. There is also a strong representation of single-parent families with 32% of all households having only one HoH. A strong majority of these single-parent nuclear and extended households are headed by females.
The average household size in the study area is 5.7. Figure 6-4 shows that 42 single individuals were also part of the 387 surveys conducted (11% of all surveys conducted). Moreover, figure 6-5 illustrates that 38 of these single individuals were part of Group 2, while 4 were part of Group 3. This strong representation of young and predominantly male single individuals in Group 3 (46% male single individuals and 4% female single individuals, see Figure 6-6) may bias some analyses when data from all three groups within the overall study area are considered. Figures and statistics that could be impacted by this bias include the dependency ratio, household expenditures and revenue, and other important statistical information that incorporates considerations such as age, gender and size of household.
Figure 6-5

Population Surveyed - Households vs Single Individuals

Source: SLII July 2010 Survey

Figure 6-6

Surveyed Population - Households vs Single Individuals Distributed by Sex

Source: SLII July 2010 Survey
53% of Haitians households are lead by a female head (RGPH 2003). In urban zones such as Port-au-Prince, this number can climb to 64% (RGPH 2003). In the study area, female head of household frequency was much lower than the national statistics. Figure 6-8 shows that Group 2 (single individuals and households residing in the Frontline Communities) had the highest occurrence of female heads (37%). The households in this group were predominantly nuclear or extended, indicating the presence of the head of household and a spouse. In this case, the head of household was counted down twice (once for the wife and once for the husband). The low occurrence of female heads of household for Group 3 can be attributed to the predominance of single male scavengers found collecting materials or engaging in other economic activities on the TMD.

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4 For statistical purposes, when the quality control for the Ms-Access Database was performed, the female “head of household” was often changed to the "spouse," leaving the male head as the sole “head of household.” This essentially means that unless the household was a single-parent household, the head of household was usually interpreted as male.
6.2.4 Age Structure in the Study Area

Haiti’s population is very young, with one third of its citizens under 15, and only 5% of the population over 65 (RGPH 2003). This low percentage of seniors can be attributed to a life expectancy of only 58 (compared to an average of 75 for Latin America and the Caribbean) (RGPH 2003).

50% of the total Haitian population is less than 20 (the average national age is 25 and the national median age 21) (RGPH 2003). The survey data illustrates (Figures 6-9, 6-10 and 6-11) that the statistics for the study area are similar to the national figures. The study area is characterized by a high concentration of youth (ages 10 to 25) and an extremely low or nonexistent representation of seniors (ages 65 and over).
Figure 6-9

Group 1 - Surveyed Population by Age

Source: SLII July 2010 Survey

Figure 6-10

Group 2 - Surveyed Population by Age

Source: SLII July 2010 Survey
The national dependency ratio for Haiti is 71.5% (3,490,745 citizens under 15 and over 64 / 4,883,005 citizens between 15 and 64 x 100) and the child dependency ratio is 57.6% (RGPH 2003). Table 6-3 shows that the overall dependency ratio for the study area is 58.3% and the child dependency ratio is 52%. Both figures are characteristic of a young population, although the dependency ratio for the study area does not truly reflect the high concentration of children under 15 for households in Groups 1 and 2. When examined separately, the dependency and child dependency ratios better reflect the composition of households within each Group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Surveyed Population (Age)</th>
<th>Dependency Ratio</th>
<th>Child Dependency Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-14</td>
<td>15-64</td>
<td>65+</td>
</tr>
<tr>
<td>Group 1</td>
<td>129</td>
<td>252</td>
<td>0</td>
</tr>
<tr>
<td>Group 2</td>
<td>483</td>
<td>877</td>
<td>52</td>
</tr>
<tr>
<td>Group 3</td>
<td>64</td>
<td>119</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>676</td>
<td>1,248</td>
<td>52</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey

6.2.5 Living Conditions in Study Area

The main type of housing occupied by single individuals and households in Haiti’s peri-urban and rural areas are small “taudis” or “kay atè” (81.1%) (RGPH 2003). “Taudis” and “kay atè” are types of housing characterized by a lack of foundation, basic 1 or 3-room layout, and recycled building materials. They lack insulation and are not water-resistant. Furniture is
usually scarce and, much like the material used for the housing structure, made from salvaged materials. The roof of the “taudis” is usually made of palm branches, metal sheeting or carton. Walls are composed of the same type of recycled materials. Separations inside the structure are usually made with hanging fabric or carton. “Kay atè” are similar to the “taudis,” but are usually described as makeshift tents or shelters. The roof is sometimes made of or held up by palm branches and the floor usually consists of hardened mud. The kitchen for both types of housing is usually open air.

Small rural houses in Haiti have an average of 2.7 rooms. Wealthier households have an average of 3.4 rooms but this is higher than the national average (RGPH 2003). Survey data in the study area reflect the national statistics for populations in the poorest socio-economic bracket.

Figures 6-12 and 6-13 illustrate that the average size (dimension) and number of rooms per housing unit or other building in the study area are 25m² and 2.2 respectively. Some of the structures counted were small businesses, but often the structure used for housing doubled as the structure from which the individual or household ran a small shop.

**Figure 6-12**
Size of Buildings of Surveyed Population

![Size of Buildings of Surveyed Population](source: SLII July 2010 Survey)
Many structures were affected during the recent earthquake that shook the capital. Figure 6-14 shows that 70% of survey respondents claimed that their structure had been damaged on January 12th. The use of tents was witnessed among all three groups as some level of damage to housing and small businesses was a reality for many single individuals and households (see Figure 6-15). However, a majority of families either continued to live in the affected housing units or made due by building improvised/semi-permanent shelters out of loose materials such as tarpaulin, metal sheeting and pieces of wood. Mud and poor quality cement were often used as glue to hold building materials together. The team found it difficult to judge whether the quality of the housing was significantly better before the earthquake, particularly for housing on the TMD, as many structures simply looked like makeshift shelters and the respondents stated that they had lived in these houses for several years.
Figure 6-14
Respondents in the Study Area Claiming their Structure Was Damaged During the Earthquake

Source: SLII July 2010 Survey

Figure 6-15
Principal Building Material Used for Respondent’s Structures in the Study Area

Source: SLII July 2010 Survey

Figure 6-16 shows that only 11% of Group 1 respondents (single individuals and households residing on the TMD) claimed to have structures equipped with latrines. The fact that the interpretation of what a latrine may consist of, could account for why such a high percentage of Group 3 respondents claim to have latrines (47%). This statistic is not consistent with eye-
Latrines in the area have been understood as communal or individual structures, as well as constructed or rudimentary facilities (e.g., holes in the ground).

**Figure 6-16**

*Respondents in the Study Area Claiming Structure Is Equipped with Latrines*

![Bar chart showing percentage of individuals claiming their structure is equipped with latrines.](image)

Source: SLII July 2010 Survey

Tenure status for single individuals and households in the study area was often a sensitive subject to broach. The SLII team was not able to corroborate claims collected in surveys by checking title documents for structures and land occupied. The data in Figures 6-17, 6-18 and 6-19 reflects the perception of the population in the study area concerning ownership of their occupied structures. This is particularly true for Groups 1 and 3, who claimed to be owners but live on the TMD where land officially belongs to the GoH.
Figure 6-17

Surveyed HoH Declared Structure Ownership Status

- 73% Owner
- 14% Tenant
- 3% No Title
- 8% Earthquake Refugee
- 1% Other
- 1% No Tenure Stated

Source: SLII July 2010 Survey

Figure 6-18

Surveyed HoH Declared Structure Ownership Status

Source: SLII July 2010 Survey
6.3 AGRICULTURAL LAND IN THE STUDY AREA

6.3.1 Rapid Census of Agricultural Land on TMD (Group 4)

Although agriculture is not practiced on a large/commercial scale in the study area, it can be described as a primary economic activity for a portion of households that cultivate crops within 34.5 ha on the northern section of the TMD. Parcels are mainly occupied by banana plantations coupled with seasonal crops such as corn, beans, manioc, potatoes and peas. At the end of the agricultural season, parcels are solely occupied by banana trees. Livestock raising is practiced, but not on a large scale. Most households own a small number of pigs, chickens, goats and sometimes cows. Free range grazing was not observed and cultivator households choose to tie up their animals.

The number of households involved in agricultural activities on the section of agricultural land within the TMD was approximated by analyzing high-resolution satellite imagery of the section of the TMD and counting the number of parcels outlined. By assuming that 1 parcel would belong to 1 household, the SLII team estimated that 70-80 household would be involved in land cultivation in the zone. Out of the total households engaged in agricultural activities on this section of land, 23 were found and included in a rapid census (see Table 6-4). Census data gleaned from this exercise yields the following information:

- All HoHs are male and their average age is 47;
- The average size of the cultivator household is 7.5 members;
- 13 of the surveyed households reside in FCs (Group 2);
- 1 of the surveyed household resides inside the TMD site (Group 1);
- 9 households reside in other communities outside the TMD;
• The average size of a household parcel is 0.82 ha;
• Banana is the main crop for all cultivator households;
• An average of 96% of the yield is sold in the local market;
• The average Unit Price of a dozen bananas is 300 Gourdes;
• The average annual revenue of the 23 cultivator households is 415,811 Gourdes;
• 100% of cultivator households declared agriculture as their primary economic activity;
• For 78.26% of cultivator households, agriculture is their only economic activity;
• For 21.74% of cultivator households, agriculture is their primary economic activity but they also practice a secondary activity; and
• 8.69% of cultivator households engage in scavenger activities on the TMD as a secondary source of income.

Table 6-4 presents the main results from the Rapid Census of Agricultural Land in the Northern section of the TMD.
## Table 6-4
Results of the Rapid Census on the Agricultural Land Inside the TMD

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Gender</th>
<th>Age</th>
<th>No. Members of the Household</th>
<th>Location of Residency</th>
<th>Parcel Size (Carreau)</th>
<th>Parcel Size (Ha)</th>
<th>Primary Crop</th>
<th>Annual Yield (by Dozen)</th>
<th>Price per Dozen Gdes</th>
<th>% Sold</th>
<th>Annual Revenue in Gdes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Edgard St Victor</td>
<td>M</td>
<td>55</td>
<td>10</td>
<td>Vaudreuil</td>
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<td>0.32325</td>
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<td>Banane</td>
<td>45</td>
<td>3250</td>
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<tr>
<td>3</td>
<td>Brésil Exilus</td>
<td>M</td>
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<td>Duvivier</td>
<td>0.13</td>
<td>0.16809</td>
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<td>M</td>
<td>23</td>
<td>5</td>
<td>Vaudreuil</td>
<td>0.13</td>
<td>0.16809</td>
<td>Banane</td>
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<td>Stéphén Jn Baptiste</td>
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<td>0.96975</td>
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<td>9</td>
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<td>M</td>
<td>55</td>
<td>10</td>
<td>Projet Drouillard</td>
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<td>5.8185</td>
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<td>99</td>
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<td>4500</td>
<td>93</td>
<td>251100</td>
</tr>
</tbody>
</table>

Total Size of the Parcels Counted 14.52 18.77436
Average Size of Parcel per Household 0.6313043 0.8162765

Note: 1 carreau = 1.29 ha.
According to consultations with the population included in the survey, prior to the current improvement activities being undertaken by PHD Group on the TMD site, cultivators in the area had to deal with the following issues:

- Decrease in annual yield due to contaminated waters draining into cultivated parcels;
- Littering of parcels, particularly with plastic bottles.

A major concern cited by participants was loss of their land and primary source of income. The cultivator households are well aware that the land officially belongs to the GoH.

Other issues highlighted were the following:

- Lack of irrigation opportunities in the area
- Flooding from the Riviere Grise
- High winds damaging crops

Participants also explained that they had formed cooperatives called “mutuelles” which could provide cultivators with loans at a 1.5% interest rate. The cooperatives each have seven members and meet on a weekly basis. The cooperative also use a local micro-credit institution called “FAF” to borrow money at a 2.5% interest rate. The Functional Literacy Ministry of Haiti (FLM) has also played a major role in assisting cultivators in the zone in financing and capacity building activities.

### 6.3.2 Agricultural Activities in the Study Area (Survey Data for Groups 1, 2 and 3)

Agriculture is considered a secondary or tertiary economic activity for the study area as a whole. Figure 6-20 shows that 27% of individual and households surveyed own one or several parcels of agricultural land. When assessing Group 2 data (single individuals and households residing in the Frontline Communities), however, it becomes evident that agriculture is a primary source of revenue for the FCs. 46% of single individuals and household surveyed claimed to own agricultural land. The average dimension for a cultivated parcel belonging to an individual or household surveyed in the study area measures approximately 0.905 ha.
Survey data shows that individuals and households in the study area do not cultivate crops solely for commercial purposes. Crops are either entirely consumed by the single individuals or households themselves, or auto-consumed and partially sold in the market. Figure 6-21 shows that 59% of the surveyed population sells a portion of their annual harvest in the local market. Survey data also point to the fact that households in Group 1 (Residing on TMD) are less likely to sell their agricultural products in the market. This is mainly due to the fact that the parcel size for Group 1 is smaller than for Group 2 (Residing in FCs). Yield is therefore less significant and crops are on average less valuable. Figures 6-22, 6-23 and 6-24 show that, for all three groups, the most common crop is bananas (32%).
Figure 6-21

Surveyed Population with Agricultural Land Parcels - Crops for AutoConsumption and/or Sold in Market (%)

<table>
<thead>
<tr>
<th>Group</th>
<th>Autoconsumption</th>
<th>Sold in Market</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>69</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>Group 2</td>
<td>23</td>
<td>0</td>
<td>77</td>
</tr>
<tr>
<td>Group 3</td>
<td>0</td>
<td>0</td>
<td>31</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey

Figure 6-22

Group 1 - Principal Type of Crop Cultivated

- Bananas: 29%
- Manioc: 17%
- Corn: 17%
- Pees: 9%
- Potatos: 17%
- Other Fruit and Vegetables: 17%

Source: SLII July 2010 Survey
Annual revenue from agricultural activities in the study area is low. Figure 6-25 shows that only a small percentage of Group 1 and 3 single individuals and households earn more than 5000 Gourdes annually through crop selling in the market. Depending on the daily exchange rate, this is equivalent to approximately 126 USD/year (with an exchange rate 39.5 Gourdes = 1 USD). Group 2 (Residents of FCs) annual revenue from agricultural activities is more substantial, with 17% of single individuals and households earning over 5000 Gourdes per year from selling their goods in the market. It is also important to consider that several Group 2 households surveyed own more than one parcel of agricultural land.
6.4 **LIVESTOCK**

Figure 6-26 shows that a large percentage of individuals and households in the study area (40%) own livestock. 37% of these single individuals and households sell their animals in the market (see Figure 6-27). This statistic is particularly significant, as the IDC report shows that many of these animals may be sick or contaminated by grazing on or in the vicinity of an uncontrolled dumpsite. Livestock might ingest medical waste or other toxins and make humans sick when their meat is consumed.
Figure 6-26

Surveyed Individuals and Households Who Own Livestock (%)

Source: SLII July 2010 Survey

Figure 6-27

Surveyed Individuals and Households Who Own Livestock and Sells It in Local Market

Source: SLII July 2010 Survey

Survey data show that the average number of animals owned by single individuals and households in the study area is 6.6 (see Figure 6-28 for more detailed distribution). The calculation of this average figure incorporates livestock that is usually owned in higher numbers, such as chickens, pigeons and other poultry. These figures may have inflated the average number of animals per household. It is clear that the population in the study area is
economically challenged and does not typically own multiples of more costly livestock such as cows, goats and pigs.

**Figure 6-28**

*No. of Animals Owned by Surveyed Individual or Household*

![Bar chart showing the number of animals owned by survey respondents, categorized by group.](image)

*Source: SLII July 2010 Survey*

**Figure 6-29**

*No. Livestock Owned by Surveyed Individuals or Households (%)*

![Bar chart showing the percentage of livestock owned, categorized by group.](image)
Figure 6-30

Source: SLII July 2010 Survey

6.5 ECONOMIC ACTIVITIES ON THE TMD

Figures 6-31, 6-32 and 6-33 provides general information on economic activities undertaken by the three surveyed groups. Section 6.5.1 provides more detailed information on economic activities practiced by scavengers on the TMD.
**Figure 6-31**

Surveyed Population (All members of Household Over Age 12)  
Declared Economic Activity Status in Study Area

Source: SLII July 2010 Survey

**Figure 6-32**

Population (All Members of Household Over Age 12)  
Distribution by Primary Economic Activity

Source: SLII July 2010 Survey
6.5.1 Economic Activities Practiced By Scavengers on the TMD

Scavengers on the TMD include children, adolescents, adults and seniors, both male and female, who engage in economic activities on the site, such as extracting and selling recyclable materials. Figure 6-34 shows that 94% of surveyed male HoHs and 25% of female HoHs in Group 1 (single individuals and households residing on the TMD) are engaged in collecting recyclable materials on the TMD. Only 8% of male single individuals and HoHs and 3% of female HoHs work as scavengers on the TMD.
The word used for scavengers among locals is « kokorat ». « Kokarat » is a Créole word with negative connotations normally used to describe marginalized people, delinquents and drug addicts. In effect, recourse to drugs and alcohol are common in the scavenger community. Many scavengers interviewed admitted to using drugs as a way to escape the misery of everyday life on the dumpsite.

Scavenging is a purely informal economic activity with no official statistics to measure its socio-economic implications. However, the SLII team can confidently report that the majority of scavengers live on the TMD site, as they commonly work 12 hour day or night shifts (sometimes both). Figure 6.35 illustrates how many days per month surveyed scavengers reported working. A clear majority of scavengers reported working between 21 and 31 days per month.
It is important to emphasize the alarming sanitary conditions in which these single individuals work and the health risks involved. Scavengers are exposed daily to open sewage, medical waste and toxins. None of the scavengers interviewed had adequate equipment or tools to conduct their work with a minimum standard of safety. Most scavengers do not wear boots, gloves or dust masks. Several young scavengers were seen rummaging through waste without shoes or long pants. Interviewees were candid regarding medical problems they have suffered from as a result of cuts and abrasions from sharp objects hidden in the waste. Some even reported being pricked by used syringes while searching through medical waste.

Although scavenging can only be described as an informal economic activity, it does have some organized aspects in terms of the interface between sellers and buyers and the overall systematic nature of the economic cycle. The SLII team observed a certain level of competition among scavengers for control of key areas on the TMD. It is clear that newcomers are not often welcome and the site is ruled by a system of hierarchy based on seniority and/or ability to physically claim an area. Territorial power struggles often result in violence, particularly among adolescent scavengers.

Extraction Process: The extraction of recyclable materials from waste and debris often begins before the trucks carrying the material even reaches the TMD. This is particularly true for valuable metals, as the scavenging system operates on a first-come-first-served basis. By scaling a moving truck with Construction and Debris (C&D) material headed for the TMD, young and agile scavengers gain first pick of recyclable items. For many, this advantage is worth the risk of falling off the truck. Many throw the reclaimed materials on the side of the road to later retrieve them. Several accidents involving young adolescent scavengers were
witnessed by the SLII team. During one incident, a scavenger of about 12 fell from a moving truck and seriously injured his face and arms.

When trucks arrive at the TMD, scavengers swarm toward the truck and vie for their portion of waste. Once recyclable materials have been extracted, each scavenger stocks his/her items in a specific area (mainly on the TMD site). Scavengers will accumulate materials throughout their working hours and then proceed to sell the total to a “Gran Balanse” Middle Man who pools the items from several scavengers.

**Scavengers involved in collecting metals: copper, aluminum and iron**

Scavengers collect metals (copper, aluminum and iron) to sell to middle men called “Gran Balanse” (owners/operators of scales to weigh metals). These “Gran Balanse” then sell the pooled weighed metals to a wholesaler company called GS, which is involved in the recycling business on a larger scale. Scavengers cannot deal directly with the GS wholesaler, as the total of the weighed metal collected by each individual scavenger is usually not sufficiently large to allow for a direct business relationship with a wholesaler. It usually takes the “Gran Balanse” a minimum of 15 days of purchasing metals from various scavengers to accumulate a sufficient balance to sell to the GS wholesaler. Moreover, the cost of transportation would be too great for a scavenger to cover. These factors have enabled five middle men “Gran Balanse” to insert themselves into the TMD recycling business. Four “Gran Balanse” are positioned at various points within the TMD where there is a high concentration of scavengers. The fifth “Gran Balanse” is set up at the entrance to the TMD. Table 6-5 represents the purchase and resale prices that govern business between the scavengers, the “Gran Balanse” middle men and the GS wholesaler.

**Table 6-5**

<table>
<thead>
<tr>
<th>Product</th>
<th>Unit</th>
<th>Purchase price offered by “Gran Balanse” Middle Men (to scavengers)</th>
<th>Resale Price offered by “Gran Balanse” Middle Men (to GS Wholesaler)</th>
<th>&quot;Gran Balanse&quot; Middle Man Profit Margin per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>Lbs</td>
<td>30 Gourdes</td>
<td>40 Gourdes</td>
<td>10 Gourdes</td>
</tr>
<tr>
<td>Aluminium</td>
<td>Lbs</td>
<td>10 Gourdes</td>
<td>15 Gourdes</td>
<td>5 Gourdes</td>
</tr>
<tr>
<td>Iron</td>
<td>Kilo</td>
<td>4 Gourdes</td>
<td>7 Gourdes</td>
<td>3 Gourdes</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey

A Middle Man “Gran Balanse” resells the following daily average to a GS wholesaler:

- 5 lbs copper (50 Gourdes daily profit margin).
- 20 lbs of aluminum (100 Gourdes daily profit margin).
- 300 kilos of iron (900 Gourdes daily profit margin).

The average daily profit margin for a Middle Man “Gran Balanse” is 1,050 Gourdes, or roughly 26 USD.
Scavengers involved in collecting bottles: plastic and glass

Women working as scavengers on the TMD are predominantly involved in collecting plastic and glass bottles. Contrary to the economic cycle for recycling metals, there is no middleman involved when selling bottles to the GS wholesaler. The GS wholesaler has distributed blue plastic bags to facilitate the cleaning and triage of plastic bottles carried out by women on the TMD (or within the 200m buffer zone at the entrance of the site). When 22 bags are filled, the GS wholesaler mobilizes a truck to transport the merchandise. On average it takes three weeks for a scavenger to fill 22 bags. The GS wholesaler purchases the bags at 1.5 Gourdes/lbs.

The SLII team asked several scavengers whether the theft of stocked materials was an issue on the TMD. Many scavengers answered that they did not stock their items for more than one day at a time and theft was not a considerable worry for them since the scavenger community is quite small and finding out who stole from another scavenger would not require much investigation. One women answered, « Une fois le propriétaire du matériel identifié, il n`y a aucun risque de vole, car un Kokorat reste un Kokorat ». This signifies that scavengers know what belongs to whom and all members of the community are aware that each individual will defend their possessions.

Active fires on the TMD

The Government of Haiti and the World Bank has asked the SLII team to gather important information regarding the setting of controlled and uncontrolled fires on the TMD. The strong presence of active fires on the site has a significant impact on air quality in the area and a watering/fire extinguishing system was discussed with groups of scavengers and TMD community members in order to gauge support or concerns associated with such an initiative.

Burning trash has traditionally been a method for eliminating waste in Haiti. Small controlled fires are not unusual in Port-au-Prince, particularly in slum areas. Figure 6-36 shows that a large percentage of surveyed single individuals and household in the study area burn their trash as a means of waste disposal.
Scavengers on the TMD lack adequate equipment and tools to extract recyclable materials and the setting of small controlled fires is also often used as an effective tool for the separation of metals from combustible waste. However, while this practice is common among scavengers who seek out metals, it is to the detriment of those who seek out plastics.

The average volume of waste burned during these fires is unknown, as it varies greatly from scavenger to scavenger.

A possible watering/fire extinguishing system was perceived negatively by the scavenger community, as individuals surveyed believed that their livelihood would be impacted to a certain degree. A mitigation measure such as the implementation of regular awareness campaigns to educate the population about the risks and impacts of burning non-organic waste may serve to reduce the occurrence of small fires in the area. Also, the improved management and sorting of domestic waste arriving at the TDM will reduce the need for fires as a means to collect the metals.

Recommended mitigation measures:

- Implementation of regular awareness campaigns to educate the population about the risks and impacts of burning non-organic waste may serve to reduce the occurrence of small fires in the area.
- Improved management and sorting of domestic waste arriving at the TDM will reduce the need for fires as a metal extraction method.
- Decision to extinguish active fires on the site should be taken in consultation with scavengers involved in order to mitigate conflict and minimize impacts on their livelihood.
Artisans: Boiler making

Several small businesses are operating on the TMD. The SLII team was able to observe the activities of three small artisanal workshops where 3 to 4 TMD residents were making boilers. The operation of these small workshops depends greatly on the materials found on the TMD. Artisans purchase 1 piece of tole (or « drum ») from scavengers (purchase price 100 Gourdes) to make 8 small boilers (sold at 50 Gourdes each). On average, each artisan sells 8 to 10 boilers per week. Due to the low level of revenue associated with this business, many artisans turn to scavenging to supplement their income.

The April 2010 IDC assessment indicates that scavengers reported making between 1 and 2 USD per day. Figure 6-37 shows that scavengers surveyed during this RSA in July 2010 reported making anywhere between 50 and 750 Gourdes (approximately 1.25 USD to 19 USD). While it is obvious that some single individuals surveyed grossly inflated their daily income because they believed that they could eventually gain some form of compensation for loss of income, it is important to recognize that revenue varies according to the type of economic activity. Collecting metals, an activity predominantly practiced by men, is more lucrative than collecting plastic bottles. The SLII team can only estimate that the average daily income for a scavenger is in the range of 50 to 300 Gourdes. Any income beyond 300 Gourdes would be exceptional.

Figure 6-37

Monthly Revenu Levels for Population Engaged in Economic Activities on TMD

Source: SLII July 2010 Survey

6.6 Education

At the national level, 54.1% of the Haitian population aged 15 or older reports knowing how to read and write in general, whether it be Creole only or Creole and French. As in most developing countries, literacy is higher among men (60.1%) than among women (48.6%) age
15 and older. However, it is important to note that literacy among Haitian youth age 15 to 29 is very high (75.4%), which is not the case with adults over 60 (18.1%).

In the metropolitan area of Port-au-Prince, the literacy rate for Haitians over age 15 (82%) is higher than the national level. For men it is 89.1% whereas the figure for women is slightly lower, at 76.2%.

The survey data shows that most households in the area report currently having children in the household attending school. This is consistent with the fact that there is one (1) primary school in Vaudreuil and four (4) primary schools in Marsial. Moreover, Village des Rapatriés has an estimated 10 primary and 10 secondary education facilities. Figure 6-38 shows that, for Group 3, the high percentage of households that do not have children attending school is mostly due to the fact that many of the respondents were single and did not have families yet, or if they did, many only had very young babies.

At the national level, 65.7% of respondents without any education had difficulty pinpointing the reason why they had never attended school or had left school at an early age. It is evident, however, that socio-economic circumstances played a major role in determining whether education was accessible. 21.2% of the Haitian population with no education cites the elevated or unmanageable cost of schooling (either public or private institutions) as the principal reason for non-attendance. These schooling costs not only consist of tuition fees, but also uniforms, school supplies, food (breakfast, lunch), transportation, and other associated expenses.

**Figure 6-38**

Survey data show that education levels vary sharply among the three groups targeted in the study area. 24% of the Group 1 sample (single individuals and households residing in the community within the perimeters of the TMD), reports having no education which matches
the 24% of Group 1 that reports being illiterate. 13% of the Group 2 sample (single individuals and households residing in the Frontline Communities) over age 12 reports having had no formal education, which is slightly below the reported 18% illiteracy rate for the Group. With 44% of Group 2 reporting having completed primary studies and 36% having completed secondary studies (rates of people who have incomplete studies is quite low for this Group), the literacy rate of 82% seems to accurately reflect the level of education of the Group’s population aged 12 years or higher. The Group 3 sample (single individuals and households working as scavengers on the TMD) shows that 16% of the population over age 12 has received no formal education and 27% is reported as illiterate. The literacy rate of 73% for this Group seems high considering the fact that 40% of the sample single individuals and household members over age 12 have not completed primary studies and only 15% have attended secondary school.

Figure 6-39

![Education Levels in Study Area](image)

Source: SLII July 2010 Survey
6.7 WATER

At the national level, the sources of water supply (potable water and water used domestically) are the following:

- Rivers or other natural streams of water (46.8%)
- Rainwater/Wells (39.6%).
- Public Fountains (24.7%).
- Treated Water Purchased from CAMEP or Private Trucks (23.4%).

Groundwater in the area of Cité Soleil is just 1 to 5 feet below the surface and is fed by the surrounding ocean and by infiltration of the drainage canals. Household water in the study is supplied primarily by private vendors and brought into the area by trucks. 67% of households in Port-au-Prince ensure their water supply this way. Other sources include a deteriorated distribution network, operated by the Centrale Autonome Métropolitaine d’Eau Potable (CAMEP). Residents of the study area generally purchase their household water from mobile water vendors supplied by reservoir owners, who are in turn supplied by water trucks. Potable water in the Port-au-Prince metropolitan area is mainly supplied by the purchase of “bokits” or buckets of water from private vendors (59.7%). Survey data show that such practices also hold true for the study area. However, CAMEP has installed water kiosks in Bassan and Marsial where a 5- to 7-gallon “bokit” of water costs 1 Gourde and a 5 gallon bottle of water costs 25 Gourdes.
Figure 6-41
Source of Water Supply for Surveyed Households

Safety and health risks in an environment such as a dumpsite are high. Scavengers on the TMD do not wear protective gear or adequate clothing to protect themselves from contamination while rummaging through various types of waste, including raw sewage and medical waste. Cuts and abrasions are common among scavengers and many injuries are left untreated. Vulnerability to Hepatitis and water borne diseases is also a major concern, as no surveyed scavenger has ever undergone any type of immunization.

The most common illnesses, medical problems and injuries cited by scavengers include:

- Fever
- Anemia
- Headaches
- Eye Infections
- Malaria
- Diarrhea
- Throat Infections
- Infected Cuts
- Typhoid
- Stomach Ulcers
Overall, the chemical, biological and physical hazards present on the TMD represent a serious threat to the health and safety of scavengers and the communities in which they reside.

Figure 6-42 illustrates how many surveyed households have ever consulted a doctor in their lifetime.

![Figure 6-42: Surveyed Households That Have Consulted a Doctor Before](image)

Source: SLII July 2010 Survey

The main health facilities used by the population surveyed in the study area are:

- Marie Magdelaine (in Cité Soleil 4km away).
- Chancerelle (location unknown).
- Sainte-Catherine Hospital and Mobile Clinic (in Cité Soleil – operated by Doctors Without Borders, or MSF).
- Sainte Camille (in Carrefour 3km away).
- Hopital Delmas 33.

### 6.9 Nutritional Health

13.5% of the Haitian adult population (age 18 and over) suffers from some level of malnutrition or have a low Body Mass Index (BMI inferior to 18.5). Similarly, 20.4% of the Haitian adult population has a high Body Mass Index (BMI superior to 25). Low BMIs are has been shown to be directly linked to low levels of education. Normal BMIs (BMI between 18.5 and 24.9) are more frequently found among men than among women (75.7% against 63.1%). There exists a clear correlation between household revenue levels and the nutritional health of adults in the household. The higher the household revenue, the less likely the occurrence
of a nutritional deficiency or a low BMI among adults in the household. The lower the revenue, the more likely it is that adults in the household will have a less diversified nutritional diet, thereby consuming less meat and less food groups on a daily basis.

Nutritional health in the study area was found to be very poor. Only 27% of the surveyed population stated that they consume meat products (poultry, beef, goat) on a regular basis. Diversification of the nutritional diet was not shown to be very high and reflected the low levels of revenue among the target single individuals and households.

**Figure 6-43**

Surveyed Households That Eat Meat on a Daily Basis

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>28</td>
<td>72</td>
</tr>
<tr>
<td>Group 2</td>
<td>34</td>
<td>66</td>
</tr>
<tr>
<td>Group 3</td>
<td>34</td>
<td>66</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey

**Figure 6-44**

Group 1 - Major Diet Staples of Surveyed Individuals and Households

(% of population that regularly consumes this item)

<table>
<thead>
<tr>
<th>Item</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>40</td>
</tr>
<tr>
<td>Wheat</td>
<td>15</td>
</tr>
<tr>
<td>Flour</td>
<td>1</td>
</tr>
<tr>
<td>Vegetables</td>
<td>10</td>
</tr>
<tr>
<td>Bread</td>
<td>86</td>
</tr>
<tr>
<td>Rice</td>
<td>89</td>
</tr>
<tr>
<td>Spaghetti</td>
<td>17</td>
</tr>
<tr>
<td>Sugar</td>
<td>1</td>
</tr>
<tr>
<td>Meat</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey
6.10  USE OF ELECTRICITY IN THE HOUSEHOLD

In Haiti, access to electricity is very restricted and limited to 31.6% of all households. The service is also much more concentrated in urban areas: 10.5% of households living in rural areas have access to electricity versus 23.2% of urban households. In Port-au-Prince, 92.2% of households reported having access to electricity in 2003.
Survey data show that, in the study area, 25% of single individuals and households have access to electricity. There is no power grid in the study area so any electricity used is provided by diesel generators or rechargeable car batteries. For lighting, the population commonly uses candles and kerosene lamps.

**Figure 6-45**

Surveyed Households with Access to Electricity

<table>
<thead>
<tr>
<th>Group</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Group 2</td>
<td>64</td>
<td>37</td>
</tr>
<tr>
<td>Group 3</td>
<td>71</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: SLII July 2010 Survey

6.11 MOVEMENTS IN AND OUT OF THE TMD

Scavengers working on the TMD travel outside the area for various reasons, including:
1) Going to seek medical assistance/treatment
2) Visit relatives in provinces or other parts of Port-au-Prince
3) Going to church
4) Going to the market/shopping
5) Change of scenery/fresh air

The frequency of travel or movement for scavengers working on the TMD varies greatly and sometimes depends on income levels, as transportation by vehicle usually requires cash.

6.12 OPEN-ENDED QUESTIONS

Survey questionnaires and discussion guidelines for the semi-structured interviews included open-ended questions asking interviewees to confirm whether they were aware of the proposed project and what, in their opinion, could be the positive and negative impacts resulting from the project.

As SLII was made aware that a public awareness and sensitization campaign had not been fully rolled out to inform populations in and around the site on the proposed activities of the project, the RSA team felt a need to provide a small summary description of the project in
order to increase the likelihood that interviewees could provide us with meaningful answers. The following is the project summary that the investigators were meant to read to interviewees before posing open-ended questions on their opinions regarding the project:

“Le projet consiste de la construction et le fonctionnement d'un site temporaire de Gestion et Traitement des débris à la décharge publique de Truitier. Le site Truitier sera en mesure de traiter le volume des décombres provenant du tremblement de terre.

Le projet est actuellement à l'étude pour disposer et traiter les débris suite au séisme au site de Truitier. Ceci impliquera de réaménager une partie du site de Truitier sur une superficie d'environ 12 ha. On réalise la présente étude afin de déterminer quels seront les impacts de cette modification sur les activités et le milieu de vie des communautés. Le projet est en cours de définition et la présente étude sociale permettra de le définir et de l'optimiser au besoin afin de réduire le plus possible les impacts négatifs et maximiser les retombées positives.”

The following open-ended questions were posed as part of the final section of the survey:

1) Are you aware that the Government of Haiti is considering a waste management project on this site?
2) What are your impressions of the proposed project?
3) What impacts do you think this proposed project will have on your daily life and your activities?

Survey data show that awareness of the proposed project was split down the middle. Group 2, which is constituted of residents of Frontline Communities outside the TMD, was less aware of the project and its potential impacts than Group 1 and Group 3, which either reside or spend a considerable amount of time on the TMD site.

Figure 6-46

Surveyed Population's Awareness of the Proposed Project

Source: SLII July 2010 Survey
A review of the feedback provided shows that the proposed project is, in general, seen positively by the single individuals and households in the study area. Feedback did not vary greatly and was primarily focused on improvements in health within the communities with economic and social linkages to the TMD and possible formal employment opportunities. Some scavengers expressed concern about whether the project would impact their access to recyclable materials.

6.13 **RAPID CENSUS OF COMMUNITY RESIDING ON TMD AND WITHIN 200M BUFFER ZONE**

The SLII team conducted a rapid census of the single individuals and household residing on the TMD and within a 200m buffer zone. 250 households were identified. 989 household members were declared, making the average household size approximately 4. However, this census incorporated a large representation of single individuals who claimed to be living alone. This clearly influenced the average household size, which was found to be 5.7 members for the entire study area.

![Male to Female Ratio - Rapid Census of Residents on TMD and within 200m Buffer Zone](Image)

Source: SLII July 2010 Survey
Figure 6-48

Rapid Census - Primary Activity of Population Residing on TMD and within a 200m Buffer Zone

Source: SLII July 2010 Survey
7. POTENTIAL SOCIAL IMPACTS

This project triggers the following World Bank operational policies:

- OP/PB 4.01 – Environmental Assessment
- OP/PB 4.12 – Involuntary Resettlement

The present RSA seeks to determine potential impacts on the current living and livelihoods patterns of the local population and rule out any possibility that OP 4.12 could be triggered by the potential social and environmental impacts of Phase I of the proposed project.

Potential impacts affecting populations in and around the TMD were evaluated during this RSA on the basis of the description of the project proposed by IDC in their April 2010 report as well as the latest technical specifications for the project sent to SLII by the WB on 8 December 2010.

It should be reiterated that the project has been developed in a way to ensure that WB OP 4.12 on involuntary resettlement will not be required and to reduce potential negative social impacts of the affected population.

The following sections present an overview of these potential social impacts and propose several recommendations for eventual measures to ensure that OP 4.12 would not be triggered during all phases of this project.

7.1 SOCIAL IMPACTS

Potential social impacts that are likely to affect the local communities surrounding the project area and people carrying out formal and informal economic activities on the TMD are summarized in the following sections. Overall, the project proposed by IDC is expected to have positive impacts on the current environment, on communities and on scavengers who are economically active in the project's area of influence. Positive impacts include:

- Long term health and safety benefits for scavengers
- TMD infrastructure improvements
- Possible increases in revenue due to higher volume of debris being delivered to the TMD
- Possible future social development projects in the area

Following OP 4.01, a more detailed assessment of environmental and social impacts is required in order to assess the positive and negative impacts of the project. An Environmental Management Plan (EMP) invoking various mitigation measures must be completed.

Any negative social impacts generated by the proposed project will be nominal, as long as appropriate mitigation measures are put in place. Several of the measures proposed by IDC in their April 2010 report must be put into action in order to both reduce the negative social
impacts of the proposed project and improve precarious social and environmental conditions on the TMD.

It is important to remember that the debris management project is situated in an environment that presents a large spectrum of social and environmental risks:

- The established dumpsite/landfill does not comply with international standards.
- Historical negligence in terms of human exposure to serious environmental risks.
- Lack of a health and safety plan.
- Heightened presence of strong odors and dust.
- Presence of toxic fires/fumes.
- High concentration of dangerous particles in the air.
- Lack of management of drainage and leachate.
- Presence of scavengers on a high-risk site.
- Presence of permanent dwellings in and around the dumpsite.

As described in the following sections, the proposed project will not contribute to worsening the situation currently observed in and around the TMD.

PHS Group has completed the initial phase of the project financed by USAID in order to clear rubble at the TMD and prepare the grounds for further developments including the actual project financed by the WB. Based on information collected on site, no encroachment on agricultural land has occurred and the project will not prompt the displacement of populations residing on the site. The project footprint proposed by IDC has been slightly modified to avoid encroachment on agricultural land.

7.1.1 Physical Resettlement

The physical resettlement of any portion of the population should not be required as no permanent housing is found within the proposed project area. However, many buildings are located along the perimeter of the site, some of them permanently occupied by families living at the TMD. These households, which already live in high-risk conditions, are likely to be affected by pollution from the project site, mainly due to the emission of dust and noise. If these nuisances cannot be mitigated and the levels of dust and/or noise emission exceed the standards prescribed by the International Finance Corporation (IFC)/WB, the location of the site must be shifted and/or the population will have to be resettled (in accordance with OP 4.12). The following sections (7.1.2 and 7.1.3) describe in more detail the potential impacts of the project on air quality and the noise environment, and the implications for the potential resettlement of the local population. We can conclude that with appropriate mitigation measures the potential impacts on air quality and the noise environment, resettlement of population will not occur during the activities of this Project.
7.1.2 Air Quality

Currently, the air quality in the vicinity of the TMD can be described as poor due to the constant presence of strong odors, dust and smoke from burning waste. The construction of a debris management site to manage, treat, dispose, store and exploit the various debris and rubbish generated by the January 2010 earthquake will cause new sources of air emissions on the TMD:

- Dust generated during storage (wind erosion), handling and processing of materials (loading, unloading, crushing, sorting and spreading).
- Dust and exhaust gas from truck traffic delivering materials to site.
- Exhaust gas from diesel generators and machinery on the site.

A dust management and control plan should be put in place in order to mitigate any significant deterioration of the current air quality in and around the TMD. Specifications related to this plan, particularly concerning equipment for the handling, treatment and storage of waste material, should be issued in order to limit dust and dangerous particle emission to a contained area.

The use of diesel generators and other heavy machinery is considered a source of atmospheric contaminants. For diesel generators the main contaminants emitted are NOx and other fine particles. Taking into account the limited need for large amounts of electricity to run the project, it is unlikely that the use of generators will have a significant impact on air quality for the population in and around the TMD.

The dominant wind in the area originates from the East. With the Bay of Port-au-Prince situated west of the site and local communities located to the North, East and South, it is assumed that atmospheric emissions generated by the proposed project will drift toward the water and only have a limited effect on the local population.

Currently, the volume of waste delivered to the TMD measures an average of 1,200 tons per day. The proposed project envisages augmenting the volume of waste delivery to 3,200 tons per day, thereby significantly increasing the heavy vehicle traffic along the entrance road to the TMD. The atmospheric emissions from hundreds of trucks rolling by and the dust produced by the continuous use of the road could generate negative impacts for the population living along the access road.

In order to minimize potential negative impacts on air quality in and around the project site, certain precautionary measures should be enforced:

- A speed limit should be set for the access road to the TMD.
- Trucks entering the site should be covered.
- Before exiting the TMD, trucks should have their tires cleaned off with water.
- Use of dust control agent (water) on the C&D site and on access roads.
7.1.3 Noise

Currently, the only considerable sound emissions detected in and around the TMD originate from the traffic of trucks delivering waste.

The activities of the proposed project will produce a spike in the volume of trucks traveling on the access road to the TMD. The presence of heavy equipment to transport and crush debris could also be the source of an influx in noise pollution in the area. This will have an even greater impact if the C&D site is operated at night since the increase in noise during this sensitive time could disturb the tranquility of the local population.

Project activities must comply with the IFC/WB Environmental, Health and Safety Guidelines for noise levels beyond the property boundary of the project facilities in a residential area\(^5\), which cannot exceed:

<table>
<thead>
<tr>
<th>Period</th>
<th>Time</th>
<th>Limit (dB(A))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day period</td>
<td>7 h to 22 h</td>
<td>55</td>
</tr>
<tr>
<td>Night period</td>
<td>22 h to 7 h</td>
<td>45</td>
</tr>
</tbody>
</table>

The noise abatement measures to consider for this project are:

- Continued enforcement of policy that operations take place during daylight only.
- Identification of alternative access roads to TMD, to get as far away as possible from homes, schools and other sensitive sites.
- Constant maintenance of access roads to the TMD to minimize the presence of damaged pavement, which may cause the production of impact noise during the passage of trucks.
- Sensitization of truck drivers, to ensure that they keep the engine speed as low as possible (and/or abide by a speed limit).
- Use of sound suppressors on all equipment with internal combustion.
- Positioning noisy equipment on the site as far as possible from sensitive areas (distance of about 300m).
- Positioning insulation material between the crusher and sensitive areas, to obtain a noise reduction effect by "sound barrier." If new buildings are constructed on the site, they could also act as noise barriers.

7.1.4 Health and Safety

The current health and safety situation of the population living in and around the TMD is high risk.

The activities of this project will have a relatively limited effect on the current health status of the local population. The main health considerations include the atmospheric and dust

\(^5\) http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS_1-7/$FILE/1-7+Noise.pdf
emissions generated by the project. The mitigation measures presented in Sections 7.1.2 and 7.1.3 aim to minimize these potentially negative impacts. If the proper mitigation measures are put in place, the proposed project will not contribute to aggravating the already alarming sanitary conditions.

In terms of safety, the spike in truck traffic along the access road to the TMD could be a source of concern for populations in the area. Certain groups of people, such as small children, are rendered more vulnerable to accidents when residing near a busy road. A sensitization campaign targeting families with young children in the area should be conducted to increase awareness on the risks of living near a busy roadway. Moreover, truck drivers should be trained on remaining attentive and driving at speeds that would enable them to stop if a person is detected on the road. A perimeter fence or guard rail could also be installed with the endorsement of the community.

The measures mentioned above should be included in a detailed safety and security plan, which will be disseminated among all stakeholders, including the local population and employees.

7.1.5 Agricultural Environment

The initial layout of the project encroached on a section of the agricultural zone to the North of the TMD. The layout of the proposed project has been modified to avoid the impact on populations using the area to cultivate crops. Based on information collected on site, no encroachment on agricultural land has occurred during the initial phase of the project completed by PHS Group. Because the layout has been modified, OP 4.12 will not be triggered by the activities of this project financed by the WB. Similarly, no significant impact on agricultural land and activities is expected during the life-cycle of this project.

7.1.6 Demography and Induced Migration

It is understood at this point that the proposed project will not cause a significant shift in the baseline demography of the area by inducing important flows of in-migration. While the presence of the proposed project and potential revenue opportunities associated with it could attract economically strained populations to settle in the vicinity of the TMD, it is not envisaged that the numbers will be significant enough to warrant considerable social planning. The TMD community is not susceptible to receiving large influxes of newcomers and Frontline Communities do not have the social infrastructure to support its current population. Considering the negative connotations associated with scavenging and the limited economic gain from this informal activity, it is doubtful that work collecting scavenging material will be seen as a pull factor. No in-migration was witnessed prior to or during the currently ongoing USAID project on the TMD.

Nevertheless, implementing actors have the responsibility of increasing awareness among the local population concerning the components of the proposed project and any possibility for employment opportunities targeting locals. It was clear that during interviews with
residents of the TMD and Frontline Communities, there was great sense of disappointment and frustrations regarding the fact that the USAID project implemented by PHS Group did not produce any local economic benefits as the workforce was brought in from a previous project. While this employment strategy was mostly due to the tight implementation timeline of the project and the lack of time to train locals, the project is seen as a missed opportunity by many in the community.

7.1.7 Land Tenure

Land required to implement the proposed project is situated within the perimeter of the TMD. This land has belonged to the GoH since 1983 (see Annex D). While several sources have stated that land ownership for Truitier is still the subject of litigation no formal evidence was found. In fact, the Presidential Decree declaring Truitier as government land is included in this report as Annex D.

7.1.8 Livelihoods and Incomes

As described in Chapter 5 of this report, several hundred people in the study area have strong socio-economic linkages to the proposed project site. A rapid census of the population residing on the TMD and within a 200m buffer zone revealed that 64% of the 250 single individuals and heads of household declared scavenging as their primary economic activity (Figure 7-1 below and Section 6.5 for more detailed breakdown).

![Rapid Census - Primary Activity of Population Residing on TMD and within 200m Buffer Zone](image)

Moreover, as shown in Figure 6-32, as many as 75% of Group 3 single individuals and household members over age 12 surveyed work as scavengers on the TMD. This high figure is to be expected, considering the nature of the target group. As for the community on the TMD, 47% of Group 1 single individuals and household members over age 12 engage in various combinations of scavenger-type activities on the TMD. The number for Group (single individuals and households living in FCs) is much lower, with only 10% of single individuals
and household members over age 12 surveyed declaring scavenging as their primary activity. Many claim they have a small business and/or engage in agricultural activities. While the level of poverty in the Frontline Communities is extremely high, activities are more diversified and economic linkages to the TMD are not as direct. Overall, 44% of all single individuals and household members over age 12 surveyed have declared scavenging work on the TMD as their primary economic activity. The majority of these people work between 21 and 31 days per month for up to 12 hours per day. While it is unclear what the exact revenue barometers are for each type of scavenging activity (various combinations of activities, collecting bottles, collecting metals, triage, transportation, etc.), it is evident that the income level is low and many of the communities are fully dependent on the minimal takings derived from this informal type of self-employment.

The proposed project does not involve any major negative impacts on scavengers’ current economic activities. Domestic waste will continue to be delivered to the TMD at current levels. The increase in volume of C&D waste entering the site could yield positive impacts on the scavenger community. If scavengers are employed in a formal manner to ensure the triage/extraction of unwanted recyclable materials from the earthquake debris, their economic conditions could improve.

A watering/extinguishing system for fires on the project site could potentially have a slight impact the economic activities of some scavengers. The decision to extinguish active fires on the site should be taken in consultation with scavengers involved in order to mitigate conflict and minimize impacts on their livelihood. A mitigation measure such as the implementation of regular awareness campaigns to educate the population about the risks and impacts of burning non-organic waste may potentially serve to reduce the occurrence of small fires in the area. Also, improved management and sorting of domestic waste arriving at the TDM will reduce the need for fires to collect metals. Decision to extinguish active fires on the site should be taken in consultation with scavengers involved in order to mitigate conflict and minimize impacts on their livelihood.

7.2 APPLICABILITY OF OP 4.12 IN THE PROJECT

OP 4.12 clearly states that actors must:

1) Avoid involuntary resettlement where feasible or minimize it, exploring all viable alternative project designs.

2) Consult affected persons meaningfully and provide opportunities to participate in planning and implementing negative impact mitigation measures and resettlement action plans.

3) Assist affected persons in their efforts to improve their livelihoods and standards of living, or at least to restore them to pre-displacement levels.

Scenarios which would trigger OP 4.12 include involuntary population displacement due to:

a. Loss of income sources or means of livelihood (whether or not the affected person must move to another location)
Involuntary taking of land

b. Loss of shelter leading to relocation

c. Loss of assets or access to assets

As outlined in sections 7.1.2 and 7.1.3, OP 4.12 should not be triggered in the context of the proposed project as long as the proposed mitigation measures related to air quality and noise environment are applied. More specifically the Project should ensure that the location of components of the proposed project contribute to minimizing negative impacts on air quality and the sound environment in accordance with WB standards (World Bank, 1998).

If required, and if the WB standards are not met, the layout of the proposed project should be redefined in order to increase the size of the buffer zone between the proposed project and the community residing within the southern section of the TMD.

Considering that the project footprint has been optimized and if the preceding measures are applied, the following should not occur:

- Physical displacement
- Loss of fixed assets or any other land improvement
- Loss of farmland
- Loss of crops
- Loss of income for the population, particularly the scavengers who work on the site
- Deterioration of air quality and the sound environment in populated areas beyond the WB allowable standards

According to World Bank procedures, in the cases in which any of the above-mentioned impacts were to occur, the triggering of OP 4.12, and preparation of a Resettlement Action Plan (RAP) would be required.

7.3 SUMMARY OF PROJECT IMPACTS AND PROPOSED MITIGATION MEASURES

Table 7.1 presents the potential impacts identified and mitigation measures proposed in the following sections.

The mitigation measures recommended in this report will have to be outlined and detailed in an Environmental Management Plan (EMP).
### Table 7-1
Summary of Potential Project Impacts and Proposed Mitigation Measures

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Description</th>
<th>Proposed Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Resettlement</td>
<td>The physical resettlement of any portion of the population should not be required in this project, as no permanent housing is found within the proposed project area.</td>
<td>Households already living in high risk conditions on the perimeter of the project site are likely to be affected by pollution from the project mainly due to the emission of dust and noise. If these nuisances cannot be mitigated and the levels of dust and/or noise emission exceed the standards prescribed by the IFC/WB, the location of the site must be shifted and/or the population will have to be resettled.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Dust generated during storage (wind erosion), handling and processing of materials (loading, unloading, crushing, sorting, spreading).</td>
<td>Formulation and implementation of Dust Management and Control Plan.</td>
</tr>
<tr>
<td></td>
<td>Exhaust gas from diesel generators and machinery on the site.</td>
<td>Taking into account the limited need for large amounts of electricity to run this project, it is unlikely that the use of generators will have a significant impact on air quality for the population in and around the TMD.</td>
</tr>
<tr>
<td></td>
<td>Exhaust gas and dust from trucks delivering materials to site.</td>
<td>1. A speed limit should be set for the access road to the TMD; 2. Trucks entering the site should be covered; 3. Before exiting the TMD, trucks should have their tires cleaned off with water.</td>
</tr>
<tr>
<td>Noise</td>
<td>Influx in noise pollution in the area due to presence of heavy equipment to transport and crush debris</td>
<td>Continued enforcement of policy that operations take place during daylight only.</td>
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<td>Identification of alternative access roads to TMD, to get as far away as possible from homes, schools and other sensitive sites.</td>
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<td>Constant maintenance of access roads to the TMD to minimize the presence of damaged pavement, which may cause the production of impact noise during the passage of trucks.</td>
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<td>Sensitization of truck drivers, to ensure that they keep the engine speed as low as possible (and/or abide by a speed limit).</td>
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<td>Use of sound suppressors on all equipment with internal combustion.</td>
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<td>Positioning noisy equipment on the site as far as possible from sensitive areas (distance of about 300m).</td>
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<td>Positioning insulation material between the crusher and sensitive areas, to obtain a noise reduction effect by &quot;sound barrier.&quot; If new buildings are constructed on the site, they could also act as noise barriers.</td>
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<tr>
<td>Health and Safety</td>
<td>Spike in truck traffic along the access road to the TMD could make population living along road vulnerable to accidents, especially small children.</td>
<td>Sensitization campaign targeting families with young children.</td>
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<td>Installation of perimeter fence or guard rail.</td>
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<td>Potential Impact</td>
<td>Description</td>
<td>Proposed Mitigation Measure</td>
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<tr>
<td>Demography and Induced Migration</td>
<td>While the presence of the proposed project and potential revenue opportunities associated with it could attract economically strained populations to settle in the vicinity of the TMD, it is not envisaged that the numbers will be significant enough to warrant considerable social planning.</td>
<td>Increasing awareness among the local population concerning the components of the proposed project and any possibility for employment opportunities targeting locals.</td>
</tr>
<tr>
<td>Livelihood and Incomes</td>
<td>The proposed project does not involve any major negative impacts on scavengers’ current economic activities.</td>
<td>The increase in volume of C&amp;D waste entering the site could yield positive impacts on the scavenger community. If scavengers are employed in a formal manner to ensure the triage/extraction of unwanted recyclable materials from the earthquake debris, their economic conditions could improve.</td>
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<td></td>
<td>A watering/extinguishing system for fires on the project site could potentially have a slight impact the economic activities of some scavengers.</td>
<td>1. The implementation of regular awareness campaigns to educate the population about the risks and impacts of burning non-organic waste may serve to reduce the occurrence of small fires in the area.</td>
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<td>2. Improved management and sorting of domestic waste arriving at the TDM will reduce the need for fires to collect the metals.</td>
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<td>3. Decision to extinguish active fires on the site should be taken in consultation with scavengers involved in order to mitigate conflict and minimize impacts on their livelihood.</td>
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</tbody>
</table>
8. BIBLIOGRAPHIC REFERENCES


Annex A Maps
Figure A.1

Truitier Landfill Property Limit / Limit de propriété du dépôt de Truitier
Existing Municipal Solid Waste / Déchets Ménagers Existant
C&D Storage and Processing - Phase 1 / Aire de disposition et de traitement des débris - phase 1

Sources:
1- Image Google (résolution 15 cm), 21 janvier 2010.
2- Project layout, Integrity Disaster Consultants, Avril 2010
Geographic Coordinate System: UTM Nad27, zone 18

Title
C&D Storage and Processing / Aire de disposition et de traitement des débris

Project
Haiti - Post-Earthquake Reconstruction Project / Projet de reconstruction post-séisme en Haïti

Project Director (client) / Directeur du projet (client)
Nicolas Peltier-Thiberge

Project Director (consultant) / Directeur du projet (consultant)
Christian Laliberté

Client
Organisation Clients
World Bank / Banque Mondiale

Consultant
Consultant
SNC-Lavalin International

Score 0 100 200 mètres
1 2010/08/26 Préliminaire L. Bathalon C. Laliberté
2 2011/01/13 Final L. Bathalon G. Goodfellow

File A1_Truitier_project_component.mxd

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Sources:
Annex B Photos
Survey with a scavenger.

Focus group meeting with a group of scavengers.
Survey with a scavenger collecting scrap metal on Truitier landfill.

Scavengers on Truitier Landfill Site. Smoke filled landfill in the background.
Survey with a woman with a young child collecting clothes on Truitier landfill.

Temporary storage of metal scrap and scale used to weigh collected materials.
Temporary storage of plastics on Truitier landfill.

Buildings made of sheet metal adjacent to TMD site.
Buildings made of sheet metal and inadequate drainage adjacent to TMD site.

Storage of recovered materials and residential areas on TMD site.
Houses on TMD site.

House on TMD site.
Water well in the vicinity of the TMD.

Livestock grazing on the TMD.
Banana plantation in the northern section of the TMD.

Focus group meeting with the "Rassemblement des paysans haïtiens"
Initial phase of the project financed by USAID has completed by PHS Group. Proximity with agriculture land.
Annex C Questionnaires
Guide d’entretien pour les consultations avec informateurs clés, focus group et représentants des communautés sur le site ou étant limitrophes au site de Truitier

1. Historique du site et des communautés
1.1 Qu’est ce qui était à la place du site Truitier avant le dépotoir?

1.2 Depuis combien d’années les familles les plus anciennes résident sur le site et dans les communautés avoisinantes ?

1.3 Quand ont été les plus importants influx de migration dans les communautés sur le site ou celles avoisinantes ? Suite au séisme ?

1.4 Il y a-t-il une ou plusieurs études sociales déjà accomplies ?

1.5 Est-ce que les communautés sont bien définies et autonomes ? Quelles sont-elles ?

1.6 Depuis votre organisme à des activités dans la zone et quelles sont ces activités ?

2. Caractérisation sociale du site Truitier
2.1 Quels sont les différents groupes sociaux qui résident sur le site ? Y a-t-il une hiérarchie sociale ?

2.2 Quels sont les différents groupes qui ont des activités économiques sur le site ?
2.3 Où réside la majorité des chiffonniers (scavengers) qui ne vivent pas sur le site ? Quartier spécifique ? Proche du site ? Sans-abris ?

2.4 A-t-il eu une augmentation dans le nombre de chiffonniers travaillant sur le site depuis le séisme et l’établissement des camps de tentes près du site ?

3. Activités économiques des chiffonniers
3.1 Quel est un revenu mensuel moyen pour un chiffonnier ?

3.2 Est-ce que la majorité des chiffonniers sur le site pratiquent aussi une autre ou plusieurs activités économiques ? Lesquelles ? Sont-elles plus lucratives ? moins lucratives ?

3.3 Est-ce qu’il y a des chiffonniers qui travaillent dans les champs de cultures avoisinants ?

3.4 Est-ce qu’il y a des personnes qui résident de façon temporaire sur le site ou dans les communautés avoisinantes ?

3.5 Est-ce qu’il y a des mouvements migratoires particuliers dans les activités réalisées par les chiffonniers ? Mouvements de population quotidiens, hebdomadaire, mensuels, saisonniers et annuels ?

4. Education
4.1 Y a-t-il des écoles utilisées par les enfants résidant sur le site et dans les communautés avoisinantes ? Où sont-elles ?

4.2 Quel est le niveau de scolarisation atteint en général pour les résidents ?
5. Santé
5.1 Quelles sont les hôpitaux ou centres de santé utilisés par les résidants du site?

5.2 Quelles sont les maladies et problèmes de santé les plus courants parmi les habitants de la zone?

5.3 Est-ce qu’il y a plusieurs femmes enceintes qui résident sur le site? Où accouchent-elles?

5.4 Quelle est le taux de morbidité des nouveau-nés pour les ménages résidant sur le site?

6. Eau
6.1 Où sont localisées les sources d’eau de boisson utilisées par les habitants sur le site?

7. Santé alimentaire
7.1 Quel est le régime alimentaire des ménages chifonniers?

7.2 Quel est le régime alimentaire des résidants du site et des communautés avoisinantes?

7.3 D’où provient la viande consommée par les ménages sur le site et dans les communautés avoisinantes?

7.4 Est-ce que le bétail pâture sur le site Truitier?
7.5 Est-ce qu’il y a des ménages qui vendent leur bétail au marché ?

8. Perceptions envers le projet
8.1 Etes-vous conscient du projet ? Quelles sont vos perceptions générales ?

8.2 Quels impact envisagez-vous ?
Guide d’enquête des focus groups de chiffonniers (scavengers groups)

Enquêteur :______________________________
Date :____________________________________
Lieu :____________________________________

<table>
<thead>
<tr>
<th>No.</th>
<th>Noms des Participants</th>
<th>Titre/fonction/travail</th>
<th>Sexe</th>
<th>Age</th>
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</table>

1. Caractéristiques générales

1.1 Quel est le pourcentage approximatif d’hommes et de femmes chiffonniers sur le site Truitier ?
   Hommes (plus de 15 ans) : __________
   Femmes (plus de 15 ans) : __________
   Garçons (moins de 15 ans) : __________
   Filles (moins de 15 ans) : __________

1.2 Quel pourcentage approximatif des chiffonniers sont mariés ? _____ ont des enfants ? _____

1.3 Est-ce que vous allez à l’église ? ___________________________________________________________

1.4 Est-ce que vous participez d’autres activités sociales de la communauté ? _______________________

________________________________________________________________________________________

2. Résidence

2.1 Quels est le nombre approximatif et la proportion de chiffonniers qui résident :
   sur le site de Truitier : __________
   au village adjacent : __________
   à l’extérieur du site (font le déplacement à tout les jours) : __________

2.2 Est-ce qu’il y a une communauté en particulier qui a une forte concentration de chiffonniers comme résidents? _______________________________________________________________________

2.3 Quel pourcentage approximatif des chiffonniers sont sans-abri ? ______________________

3. Activités économiques

3.1 Combien d’heures par jour travaillez-vous sur le site en moyenne ? ______________________

3.2 Quel est votre revenu par jour en moyenne ? ____________ par mois ? ________________
3.3 Quel sont les types de matériaux que vous récoltez ?

3.4 Quel est le type de déchet le plus lucratif à récolter ?

3.5 Comment est effectuée la revente des produits et matériaux qui vous recueillez au site de Truitier ?

4. Migration

4.1 Est-ce qu'il y a une augmentation de chiffonniers qui travaillent sur le site dernièrement?

4.2 Pour quelles raisons?:

6. Eau

6.1 D'ou provident l'eau de boisson que vous buvez?

7. Education

7.1 Combien d'entre vous ont fréquenté l'école ?

7.2 Combien d'entre vous ont des enfants qui fréquentent actuellement l'école ?

8. Instruction

8.1 Combien de chiffonniers savent lire et écrire dans le groupe interrogé:
   Homme____
   Femme____
   Jeune (6-15ans)____

9. Services Santé

9.1 Hôpital ou centre de santé utilisé:

9.2 À combien de kilomètres?:

9.3 Quels sont les problèmes de santé particuliers à votre métier?:
   Hommes________
   Femmes________
   Enfants________

10. Elevage

10.1 Combien d'entre vous ont du bétail?:

10.2 Leur bétail est-il vendu au marché?

11. Marché et Régime alimentaire

11.1 Où vous procurez-vous votre nourriture?

11.2 Que mangez-vous le plus?
Enquête sociale rapide du site de Truitier - QUESTIONNAIRE MÉNAGE

<table>
<thead>
<tr>
<th>No.</th>
<th>NOM et PRENOM</th>
<th>Sexe</th>
<th>Age</th>
<th>Lien parenté</th>
<th>Lieu de naissance</th>
<th>Années de résidence à ce lieu</th>
<th>Régime d'occup.</th>
<th>Degré d'alph.</th>
<th>Degré d'étude</th>
<th>Sit d'emploi</th>
<th>Activité Principale</th>
<th>Activité secondaire</th>
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</table>

SECTION 1. CARACTÉRISTIQUES DU MÉNAGE

1.1 Nombre total de personnes dans la famille : _____________________________

1.2 COMPOSITION DU MÉNAGE

Inscrire tous les membres de la famille en débutant par le chef de ménage, l’épouse et enfants (du plus jeune au plus âgé), etc. Pour terminer par les personnes confiées.
### Enquête sociale rapide du site de Truitier - QUESTIONNAIRE MÉNAGE

<table>
<thead>
<tr>
<th>Lien de parenté avec chef de ménage</th>
<th>Lieu de résidence</th>
<th>Degré d’alphabétisation <em>(plus d’une réponse possible)</em></th>
<th>Activité principale, secondaire réalisée actuellement</th>
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</thead>
<tbody>
<tr>
<td>5. Beaux-parents</td>
<td>4. Vaudreuil</td>
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<tr>
<td>6. Frère/Sœur</td>
<td>99. Autres (préciser)</td>
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<tr>
<td>7. Beau frère/soeur</td>
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<td>8. Neveu/Nièce</td>
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<td>9. Petit-fils/Petite-fille</td>
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<td>10. Cousin/cousine</td>
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<td>11. Autre parent</td>
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<td>12. Locataire</td>
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<td>99. Autres (préciser)</td>
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<tr>
<td>Régime d’occupation des terrains</td>
<td>Si sans-abris, mettre SA</td>
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<tr>
<td>1. Propriétaire</td>
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<td>4. Refugié du séisme</td>
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<td>5. Autres (préciser)</td>
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### REMARQUES

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CONFIDENTIEL

SNC-LAVALIN ENVIRONNEMENT INC.
SECTION 2. RECENSEMENT DE L'HABITAT ET ÉQUIPEMENTS (SI RESIDENT SUR LE SITE TRUITIER)

2.1 Est-ce que votre habitat a été affecté par le séisme du 12 janvier? __________ si oui comment, destruction complète, endommagé mais non habitable, endommagé mais habitable.

2.2 Faire la liste des bâtiments (ou logements) utilisés et/ou occupés par l'individu ou la famille.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type de bâtiment/logement</th>
<th>Régime d'occupation</th>
<th>Dimension (mxm)</th>
<th>No. pièces</th>
<th>Matériel principal</th>
<th>Latrine? o/n</th>
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</table>

Type de bâtiment/logement
- 1. Maison
- 2. Petit commerce
- 3. Abri post séisme
- 99. Autres (préciser)

Régime d'occupation
- 1. Propriété
- 2. Location
- 3. Occupant sans titre
- 4. Autres (préciser)

Matériel principal :
- 1. Terre Battue
- 2. Brique
- 3. Ciment
- 4. Bois
- 5. Métal
- 6. Tarpaulin ou Tissu
- 7. Tente

2.3 Équipements fixes du ménage (ex. clôtures, etc.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Type d'équipement</th>
<th>Nombre</th>
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</table>
SECTION 3. TERRES AGRICOLES

3.1 Avez-vous une ou plusieurs parcelles agricoles qui vous appartiennent?: ________________________________________________

3.2 Est-ce que vos cultures sont pour l’autoconsommation ou pour vendre au marché?: _________________________________________

3.3 Information sur les parcelles de cultures (en culture ou non)

<table>
<thead>
<tr>
<th>No.</th>
<th>Localisation (à l’intérieur ou hors Truitier)</th>
<th>Localisation (localité)</th>
<th>Type de culture</th>
<th>Dimension</th>
<th>Rendement annuel</th>
<th>% vendu</th>
<th>prix unité</th>
<th>Revenu annuel</th>
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SECTION 4. BÉTAIL

4.1 Avez-vous des animaux qui vous appartiennent? _______________ Combien en total? ________________

4.2 COMPOSITION DU BÉTAIL APPARTENANT À LA FAMILLE

<table>
<thead>
<tr>
<th>No.</th>
<th>Nombre</th>
<th>Type de Bétail</th>
<th>Revenu annuel</th>
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<tbody>
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</table>

4.3 Est-ce que vous vendez vos animaux dans le marché? __________________________ proportion réservée pour l’autoconsommation ? : ____________
SECTION 5. ACTIVITÉS ÉCONOMIQUES SUR LE SITE

5.1 DONNÉES SUR REVENUS GÉNÉRÉS PAR COLLECTE DE DÉCHETS SUR SITE TRUITIER

<table>
<thead>
<tr>
<th>No.</th>
<th>Nom</th>
<th>Type de travail</th>
<th>Heures/jour de travail</th>
<th>Jour/mois de travail</th>
<th>Revenu/jour en moyenne</th>
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</table>

Type de travail
1. Collecte de bouteilles de verre
2. Collecte de Métaux
3. Collecte de bouteilles en plastique
4. Transport de la collecte des déchets
5. Triage
6. Personne sans emploi
7. Autre, préciser

Est-ce que vous entreposez les matériaux sur le site présentement ? ________________________________________________________________

Comment assurez-vous la surveillance des matériaux avant de les revendre ? __________________________________________________________

5.2 AUTRES SOURCES DE REVENUS

<table>
<thead>
<tr>
<th>No.</th>
<th>Nom</th>
<th>Nature du revenu</th>
<th>Description du revenu et détail des entrées</th>
<th>Heures/jour de travail</th>
<th>Jour/mois de travail</th>
<th>Revenu/jour</th>
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</table>
6. DEPENSES DE L'INDIVIDU OU DE LA FAMILLE

6.1 Préciser les dépenses mensuelles.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type de dépense</th>
<th>Dépense du ménage par mois</th>
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<tbody>
<tr>
<td>1</td>
<td>Transport</td>
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<tr>
<td>2</td>
<td>Nourriture</td>
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<tr>
<td>3</td>
<td>Logement</td>
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<td>4</td>
<td>Santé</td>
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<td>5</td>
<td>École</td>
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<td>6</td>
<td>Approvisionnement en eau</td>
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SECTION 7. EDUCATION

7.1 Combien d'enfants dans le ménage vont à l'école (fille/garçon)? _____________________________________________________________________

7.2 À quelle distance est l'école? _____________________________________________________________________

SECTION 8. EAU

8.1 Quelle est la principale source d'eau de boisson pour l'individu ou la famille? _____________________________________________________________________

SECTION 9. SANTÉ

9.1 Est-ce l'individu ou les membres de la famille ont déjà consulté un médecin? (o/n) ________________________

9.2 Dans quel centre de santé? Lieu approx.? _____________________________________________________________________
9.3 Maladies ou problème de santé de l’individu ou des membres de la famille

*Identifiez les cas de maladies courantes dans la famille.*

<table>
<thead>
<tr>
<th>No.</th>
<th>Maladies</th>
<th>Type de soins</th>
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**SECTION 10. SANTÉ ALIMENTAIRE**

10.1 Quelle est le régime alimentaire de l’individu ou de la famille?

<table>
<thead>
<tr>
<th>No.</th>
<th>Aliment</th>
<th>Quantité/jour/ménage</th>
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10.2 D’où proviennent les aliments? ________________________________

10.3 Est-ce que le bétail est autoconsommé ou vendu au marché? ________________________________

**SECTION 11. AUTRES INFORMATIONS**

11.1 Est ce que l’habitat de la famille ou de l’individu a de l’électricité?: ________________________________

11.2 Comment vous disposez de vos déchets?: ________________________________

CONFIDENTIEL SNC-LAVALIN ENVIRONNEMENT INC.
Enquête sociale rapide du site de Truitier - QUESTIONNAIRE MÉNAGE

11.3 Système d’assainissement?

SECTION 12. Déplacements

12.1 Combien de fois par semaine en moyenne quittez-vous le site Truitier? 

12.2 Où allez-vous de façon habituelle?

12.3 Quel moyen de transport utilisez-vous?

12.4 Si vous n’êtes pas né dans cette communauté, pourquoi avez-vous migré ici?

SECTION 13. CONSULTATION OUVERTE

1. Est-ce que vous savez que l’Etat haïtien considère un projet de gestion des déchets sur ce site?

2. Quelles sont vos impressions du projet?
3. Quels impacts pensez-vous que ce projet aura sur votre vie et vos activités?

Positifs :

Négatifs :
Annex D Arrêté Présidentiel du 21 avril 1983
Code des Lois Haïtiennes de l'Environnement 299
Arrêté Présidentiel du 21 avril 1983 déclarant une
portion de terrain située à l'habitation Truitier, section rurale des Varreux en la commune
de Delmas zone de traitement et de mise en décharge des résidus collectés dans la zone
métropolitaine et ses environs immédiats.
Moniteur n°33, jeudi 18 mai 1983
ARRETE
JEAN-CLAUDE DUVALIER
Président à vie de la République
Vu les articles 90, 93 et 94 de la Constitution;
Vu la Loi du 24 Février 1919 relative au Service National d'Hygiène Publique et l'Arrêté du 12 avril 1919 pris en vertu de
la dite Loi;
Vu la Loi du 5 Juillet 1942 et son Arrêté d'application du 4 Juillet 1942 relatif à la création et aux attributions des officiers
sanitaires et aux procédures en
matière de contravention à la Santé Publique;
Vu le Décret-Loi du 22 Juillet 1937, relatif à l'Urbanisme et notamment son article, visant les ménagères;
Vu la Loi du 13 Juillet 1978, réorganisant le Département des Travaux Publics, Transports et Communications;
Vu le Décret du 6 Avril 1977 sur le lotissement;
Vu le décret du 22 Octobre 1982 adaptant la législation communale aux dispositions de la constitution en vigueur;
Vu le Décret du 21 Décembre 1982 élevant au rang de communes aux dispositions de la constitution en vigueur;
Vu le Décret du 3 Mars 1981, portant création d'un organisme public autonome dénommé Service Métropolitain de
Collecte des Résidus Solides, (SMCRS);
Vu l'arrêté du 28 Février 1981, déclarant d'Utilité Publique un terrain sis à l'habitation Truitier, en vue de servir de
dépôt aux zones Nord et Centrales -et de Port-au-Prince;
Considérant le niveau médicole de l'élimination des résidus urbains constaté ces dernières années dans l'agglomération de
Port-au-Prince, concomitant avec l'augmentation démographique importante que connaît la dite agglomération;
Considérant que la mise sur pied d'une installation reçoit bien tous les sus-mentionnés produits dans la zone
qu'elle doit desservir, il y a lieu de prendre les mesures nécessaires;
Sur le rapport du Secrétariat d'Etat des Travaux Publics, Transports et Communications;

ARRETE

Article 1- La portion de terrain située à l'habitation Truitier, section rurale des Varreux en la Commune de Delmas, telle
de description par les articles 1 et 2 de l'Arrêté du 28 Février 1982, est, à partir de la publication du présent Arrêté, placée
sous la tutelle du Service Métropolitain de Collecte des Résidus Solides.

Article 2- Ce service utilisera les dits lieux pour le traitement et la mise en décharge de résidus collectés par les
particuliers, collectivités, organismes
privés ou publics engagés dans ce genre d'activités dans la zone métropolitaine et ses environs immédiats.

Article 3- Seuls les suivants ci-après mentionnés et décrits seront acceptés à l'installation de mise en décharge contrôlée;

1o) Les résidus ménagères proprement dites:
- résidus ordinaires provenant de la préparation des aliments et du nettoyage normal des habitations
et bureaux, débris de verre ou de vaisselle, cendre froide, feuilles, chiffons, balayures et résidus
divers en provenance des ménages;
- produits du nettoyage des voies publiques, squares, parcs, cimetières et leurs dépendances,
rassemblés en vue de leur évacuation;
- résidus provenant des écoles, casernes, prisons et de tous les bâtiments publics, déposés dans les 
 mêmes conditions que les résidus des habitations et des bureaux;

2o) Les résidus volumineux ou encombrant d'origine ménagère:

3o) Le résidu commercial ou artisanal déposés dans les récipients dans les mêmes conditions 
que les résidus d'habitation et de bureaux : ces résidus ne doivent être ni toxiques, ni explosifs, ni
susceptibles de s'enflammer spontanément;

4o) Les débris et gravats; C'est-à-dire les terres et éléments extraits des fouilles du sous-sol et les résidus
provenant de la démolition des bâtiments;

5o) Les cendres et machefers refroidis

6o) Les résidus industriels banals. Pouvant être traités dans les mêmes conditions et conjointement avec les 
résidus ménagères. Il s'agit par exemple de suivants: textiles divers, bois, papiers-cartons, verres,
céramiques.

7o) Les boues pelletables
Les boues non toxiques à teneur en eau inférieure à 7% et provenant d'épuration des eaux résiduaires, de curage d'égouts médicaux;

En dehors des ci-dessus énumérés, aucun autre ne sera accepté à l'installation de mise en décharge contrôlée de Truitier, sauf dérogation accordée après examen conjoint par le Ministère de la Santé Publique et de la Population et le Service Responsable du SMCRS;

Article 4 - En aucun cas les figurant sur la liste ci-après ne seront acceptés à l'installation de mise en décharge contrôlée de Truitier:
- sels solubles toxiques
- matières non refroidies
- liquides en bidons cols
- matières locales ou urinaires
- boues usées et boues provenant de teinture, tannerie papeterie, contenant des éléments polluant organiques et minéraux
- arsenic et boues arsenieuses;
- biocides
- fluide de coupe
- liquide épais ou boues contenant au moins 19% d'hydrocarbures
- sels solubles de métaux lourds
- solutions cyanurées et sels de trempe
- solvants organiques
- bi et ter/ phényle polychloré
- matières solides explosives et/ou inflammables
- acides et bases
- contaminés compréhensifs notamment:
  - anatomiques, cadavres d'animaux, fumiers de caractères putrescible
  - tout objet, aliments matériaux souillés, milieux de culture porteurs de germes pathogènes tels qu'objet à usage unique, plâtre, textiles souillés... de caractère non putrescible;
  - produits liquides et d'autopsie
  - produits d'équarrissage issus des abattoirs
  - substances radio-actives

Article 5 - L'aire desservie par l'installation englobe la zone métropolitaine et ses environs immédiats qui constituent la zone d'intervention du SMCRS.

Article 6 - Les dépôts sauvages de déchets ou de détritus de quelque nature que ce soit, ainsi que toute décharge brute d'ordures ménagères sont interdits. Dès la promulgation du présent arrêté les zones de dépôts officielles ou non, sont supprimées.

Article 7 - L'entrée de la décharge est interdite à toute personne non autorisée par l'exploitant. Le brûlage à l'air libre et le chifonnage de tout sont également interdits sur tout le site de la décharge.

Article 8 - Les industriels ou commerçants devront justifier que les engendrés, à quelque stade que ce soit par les produits qu'ils fabriquent ou importent correspondent à la nomenclature précisée à l'article 3 ci-dessus.

Article 9 - Seront punis des sanctions prévues par la Loi:
1° Ceux qui, par faute, négligence ou imprudence, auront empiété sur le domaine public ou auraient accompli un acte portant ou de nature à porter atteinte à l'intégrité de ce domaine, ou de ses dépendances ainsi qu'à celle des ouvrages, plantations, installations établis sur le dit domaine.
2° Ceux qui, sans autorisation préalable et d'une façon non conforme, auront occupé tout en partie de ce domaine ou de ses dépendances, ou y auront effectué des dépôts.
3° Ceux qui auront laissé écouter ou qui auront répandu ou jeté sur le domaine public des substances susceptibles de nuire à l'esthétique ou la santé publique ou d'incommoder le public.
4° Ceux qui auront refusé de fournir à l'administration des informations exactes. Ils seront en outre condamnés au remboursement des frais de réparation et de rémise en état des lieux.


Jean-Claude Duvalier
Par le Président:
Le Secrétaire d'État des Travaux Publics, Transports et Communications: Alix N. CINEAS
Le Secrétaire d'État de la Santé Publique et de la Population: Ary BORDES
Le Secrétaire d'État de l'Intérieur et de la Défense Nationale: Roger LAFONTANT
Le Secrétaire d'État des Mines et des Ressources Énergétiques: Claude MOMPOIN.