

**Statistics Sierra Leone**



# **2013 ANNUAL SURVEY REPORT OF QUARRYING ACTIVITIES IN SIERRA LEONE**

**Conducted by Statistics Sierra Leone**

**December, 2014**

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## **ABBREVIATIONS**

<b>ADB</b>	African Development Bank
<b>AFP</b>	Agenda for Prosperity
<b>BSL</b>	Bank of Sierra Leone
<b>DFID</b>	Department for International Development-UK
<b>ECOWAS</b>	Economic Community of West African States
<b>GDDS</b>	General Data Dissemination System
<b>GDP</b>	Gross Domestic Product
<b>IMF</b>	International Monetary Fund
<b>NSDS</b>	National Strategy for the development of Statistics
<b>PRSP</b>	Poverty Reduction Strategy Paper
<b>SCB</b>	Statistical Capacity Building
<b>SSL</b>	Statistics Sierra Leone

## **ACKNOWLEDGEMENT**

This survey is conducted annually so as to obtain pertinent information on sand mining and stone-breaking activities in the country. Quarrying activities are part of the mining and quarrying activity classified under the International Standard Industrial Classification (ISIC) revision 3.1, which classifies all economic activities according to their natural relationships. The output of this sector is not only counted as part of the mining and quarrying sector but also as an input of the construction sector. The survey is the second attempt to generate information of the quarrying industry; the first was conducted in 2010. The 2010 quarrying activities survey laid the foundation for subsequent surveys designed to capture indicators about the contribution of quarrying to GDP in the country. The main objective of the survey is to estimate the volume of sand extracted as well as the economic value of the stone breaking activity in the country to be included in the compilation of GDP, especially the quarrying sector.

This survey report has been compiled by a dedicated Team of Statisticians and data collectors and supervisors under my Supervision. SSL Management therefore acknowledges the immense contribution which the following people made towards the conduct of the survey: Abu Bakarr Turay, Head of National Accounts and Director of Economic Statistics Division; and Osman Koroma, Ibrahim Samura and Clementina Akran, all of National Accounts Statistics Section.

We also wish to thank our Data Collectors, Supervisors and our valued respondents who took some time off to take part in the data collection exercise.

We are also grateful to Government for funding this exercise.

**Mohamed King Koroma**  
**Statistician General**

## EXECUTIVE SUMMARY

Sierra Leone is a country rich not only in minerals but also in sand and other geological resources such as rocks and pebbles. Sand mining refers to the extraction of sand, mainly through an open pit, or from beaches, inland dunes and dredged from ocean and river beds. Sand is often used to make concrete, which is a mixture of sand, pebble stones and cement. As the population of the country grows, construction requires less wood and more concrete, leading to a demand for low-cost sand. Sand mining contributes to the construction of buildings and development. However, the negative effects of sand mining include the permanent loss of sand in areas, as well as major habitat destruction; which means that sand mining and stone breaking activities could result in loss of bio-diversity along the coastlines of the country, which in turn negatively impact the environment.

The main objective of the survey is to estimate the volume of sand extracted as well as the economic value of the stone breaking activity in the country to be included in the compilation of GDP, especially the quarrying sector; as well as to independently estimate the contribution of sand extraction and hence quarrying to the GDP.

The specific objectives include:

- To develop indicators for estimating sand extraction and stone breaking activities for GDP compilation
- To measure the volume of sand extracted and stone quarried in metric tones
- To estimate the value of sand extraction and stone quarried in millions of Leones

The survey covered 13 sites where sand and stone mining activities were mostly concentrated; so as to obtain fairly comprehensive and accurate estimates for this sector of our economy. However, it was found out that sand mining has been stopped at sites such as Hamilton Beach, Goderich Bololo, Lakkah Beach, Adonkia, Sussex, and sugar land all in the Freetown Peninsular. This underscores the fact that sand is after all not an infinite resource, and must be used with great care. Individual and households used mainly rudimentary tools to carry out stone breaking activity, while companies such as CSC, China Railway etc. are using machines to break stones.

## **The Findings of the Survey:**

That there were considerably more Sole Proprietorships (58.3%) than family owned businesses (20.8%) and partnership (13.3%) or cooperatives/groups/association 5.0%). That half of the households/businesses involved in sand and stone mining were established between 2000 and 2005; followed by those established between 2006 and 2010. This may be due to increased demand for quarrying products as a result of scaling up of construction activities in the capital city and the country as a whole. The increase in construction activities in the country is linked to the expansion in the demand for housing and good roads as part of the reconstruction and revamping of the economic effort after the 10-year civil war.

That only 16.7% of the 120 establishments canvassed have registration or license certificate for operating in the sand mining and stone-breaking quarrying activities in the country. This means that 83.3% is underground and hence operating in the informal sector that sand mining employs the larger part of the 626 persons working in quarrying activities in the localities. This means that of the 626 persons 61.0% were engaged in sand mining activities in the various localities, compared with the 39.0% engaged in stone breaking activities.

That intermediate consumption, which is part of the running cost of individuals and businesses surveyed valued at Le 18,864 Million in 2013. Of this amount 67.1% was associated with individuals and businesses operating in the sand mining activities in the data collection centers; while 32.9% of the intermediate cost was associated with stone-breaking activities.

That a total amount of Le 66,433 Million was declared as total turnover by operators in the various localities for both sand mining and stone breaking activities. Of this amount, 80.7% was declared by operators in sand mining, while the remaining 19.3% was associated with stone breaking activities in the localities.

That a total cost of Le 18,867 Million was incurred by operators in 2013; of this total, 67.1% was incurred by sand miners, while 32.9% was incurred by stone breaking activities.

That the gross value added from the sector amounted to Le 47,568 million in 2013. Of this amount 86.1% came from Sand mining activities, while 13.9% came from stone breaking activities.

## **Recommendations**

It was observed that there was no regulatory framework in place to regulate sand mining and stone breaking activities in the country. Although Local Councils are trying to fill the gap, there is still limited coordination among authorities such as the Head Man/Chief and local council officials. There is therefore need to establish a legal regulatory framework spelling out the coordination mechanism among various stakeholders in the quarrying sector.

Construction companies such as CSC, China Railway, Salcost, etc involved in sand mining and stone breaking should be made to pay compensation to host communities as their actions have lasting impact not only on the land but also on the lives and livelihood of such host communities

## 1.0 INTRODUCTION

### 1.1 Background

Sierra Leone is a country rich not only in minerals but also in sand and other geological resources such as rocks and pebbles. In the past the Sierra Leone economy has relied heavily on the mining sector in general, and diamonds in particular, for its economic base. In the 1970s and early 1980s, economic growth rate slowed because of a decline in the mining sector and poor macro economic policies. The revamping of the economy after the war would require major sectors like Mining and Quarrying to perform and to meet expectations once again.

Geological studies have shown that majority of rocks in Sierra Leone are of Precambrian age (over 600ma), made up mostly of granites, gneisses and greenstones (the Basement Complex), which are very suitable for construction. Lying on the basement to the West and partly on the Freetown Peninsula is the Bullom Group, which is made up of poorly consolidated sands and clays, which is easily extracted. The Freetown Peninsula (Freetown Complex) lies in extreme West of Sierra Leone, made up of igneous rocks of the gabbro family; Atlantic coast line of the Peninsula fringed by a series of sandy beaches. The western area coast extends from Aberdeen to Kent then turning North East from Kent to beyond Tombo; a length of about 50km. All these features underscore the fact that quarrying is a suitable activity in the country; and the need to develop the infrastructure of the country under Agenda for Prosperity strategy means that it is also an economically viable activity. As a result there is need for such an activity to be accurately accounted for in our gross domestic product (GDP) estimation. Quarrying is not only an economic activity, but it is also an important input into the construction sector, which is a key component of the Agenda for Prosperity (AFP).

Given the fact that Sierra Leone has fairly large deposits of sand, sand beaches and rocks throughout the country, these resources are exploited for construction of residential houses and business premises in the country as major economic activities. Both households and business enterprises are engaged in the extraction of sand. However, quarry as an economic activity (e.g. sand extraction and stone-breaking) is largely informal carried out by individuals. Apart of construction companies, there are only a few registered business establishments that are engaged in sand extraction and/or stone-braking activities in the country. Construction companies such as CSC, Chin

Railway, Salcost etc. use sophisticated machines to break stones, while households and individuals use only rudimentary tools for their work.

Sand mining/extraction areas in the capital city Freetown are recorded as showed below:

### **Sand Extraction and Stone-breaking Sites**

- Hamilton Beach
- Goderich Bololo,
- Lakkah Beach,
- Adonkia,
- Sussex,
- Number 2 River,
- Tokey,
- Big Water,
- Black Johnson,
- John Obey,
- Mama Beach,
- Tombo,
- Tissana,
- Martin Kay,
- Waterloo,
- Deep Eye Water,
- Devil Hole,
- Rokel,
- Sugar Land.
- Mamba Ridge Quarry (Kissy)

The survey covered 13 sites where sand and stone mining activities were mostly concentrated; so as to obtain fairly comprehensive and accurate estimates for this sector of our economy. However, it was found out that sand mining has been stopped at sites such as Hamilton Beach, Goderich Bololo, Lakkah Beach, Adonkia, Sussex, and sugar land all in the Freetown Peninsular. This underscores the fact that sand is after all not an infinite resource, so care must be taken in extracting it.

### 1.1.1 Sand Mining

Sand mining refers to the extraction of sand, mainly through an open pit, or from beaches, inland dunes and dredged from ocean and river beds. Sand is often used to make concrete, which is a mixture of sand, pebble stones and cement. As the population of the country grows, construction requires less wood and more concrete, leading to a demand for low-cost sand. Sand is also used to replace eroded coastline.



Another reason for sand mining is for the extraction of minerals such as rutile, ilmenite and zircon, which contain the industrially useful elements titanium and zirconium. These minerals typically occur combined with ordinary sand, which is dug up, the valuable minerals being separated in water by virtue of their different densities, and the remaining ordinary sand re-deposited.



Sand mining contributes to the construction of buildings and development. However, the negative effects of sand mining include the permanent loss of sand in areas, as well as major habitat destruction. Also sand mining is a direct cause of erosion, and also impacts the local wildlife. For example, sea birds and other creatures and plants depend on sandy beaches for

their nesting and survival; sand mining could lead to the disappearance of such plants and animals around the country. This means sand mining could result in loss of biodiversity along the coastlines of the country, which in turn negatively impact the environment. In addition, disturbance of underwater and coastal sand causes turbidity in the water, which is harmful for such organisms as corals that need sunlight. It also destroys fisheries, causing problems for people who rely on fishing for their livelihoods.

Removal of physical coastal barriers such as dunes leads to flooding of beachside communities, and the destruction of picturesque beaches causes tourism to dissipate. Sand mining is regulated by law in many places, but is still often done illegally.

In the 1930s mining operations began in the Eastern part of the country, mainly of diamonds. It is thought that low level sand mining begun much earlier (maybe during the colonial era), although most of the construction materials used then were mainly sticks, boards and mud. However, as Freetown and other communities grew, sand mining became a key activity carried out to supply the expanding construction industry. The beaches along the Freetown Peninsula have provided a convenient source of sand mining activities in the country, mainly to supply the growing demand for modern housing in Freetown.

## **1.2 Objective of the Survey**

The main objective of the survey is to estimate the volume of sand extracted as well as the economic value of stone breaking activity in the country to be included in the compilation of GDP.

The specific objectives include:

- To develop benchmark indicators for estimating sand extraction and stone breaking activities for GDP compilation
- To measure the volume of sand extracted and stone quarried in metric tonnes
- To estimate the value of sand extraction and stone quarried in millions of Leones
- To investigate the number of persons working on quarrying activities

## **1.3 Rationale of the Study**

This survey is conducted on the recommendation of the GDDS consultation to estimate independently the contribution of quarrying sector. The output of this sector is not only counted as part of the mining and quarrying sector but also as an input of the construction sector. The first survey was conducted in 2010 as part of the effort of SSL to provide relevant information to the users. The survey was designed to capture indicators about the contribution of quarrying to GDP in the country.

## **2.0 METHODOLOGY**

### **2.1 Coverage**

The survey covers all the sand mining and stone-breaking sites identified above. It is mostly an informal survey, conducted on a one-to-one personal interview with persons engaged in sand extraction and stone-breaking activities in the study sites. The survey is limited to Freetown, the capital city, and regional cities of Bo, Makeni and Kenema where majority of the construction activities do take place.

### **2.2 Data Collection**

This Quarrying survey is conducted under the Statistics Act 2002, which makes it mandatory for individuals and/or business establishments operating in sand extraction and stone-breaking activities to cooperate Statistics Sierra Leone designated staff to collect the survey. The Act also provides for confidentiality of the information collection of respondents. A trained team of enumerators and supervisors designated by Statistics Sierra Leone (SSL) undertook the data collection in the selected sites in the Western Area and the regional capital towns of Bo, Makeni and Kenema of the country. At the beginning of the survey, all the field staff are expected to establish contact with the operators in the quarrying sub-sector, to explain the purpose of the survey and to locate contact persons in the area for subsequent visit. The survey spanned a period of four (4) weeks in the first and second quarters of 2013. There were five (5) teams deployed to cover a total of twenty-four (24) sites in the Western Area and other sites in the regions. Each team comprised a Supervisor and 3 Data Collectors; and each team was given a number of localities to cover during the survey. The respondents were the individuals or group of individuals engaged in sand mining and stone-breaking activities in the chosen sites.

### **2.3 Survey Organization**

There are a total of 27 Enumerators that collected data from the sites selected for the survey under the supervision of 3 Supervisors during the first and fourth quarters of 2013 data collection exercises; 3 Data Entry Operators were also part of the survey

## **2.4 Data Processing**

A Data Processing programme was developed for the entering of questionnaires received from the field. The information in completed questionnaires was manually scrutinized, edited and coded before sending them for entry. Computer editing was also done as a way of validating the data. The data entry process will last for about two weeks.

## **2.5 Sample Achieved**

A total sample of 120 operators in the quarrying sector was targeted for the year 2013; however, a total of 117 operators were successfully interviewed from selected localities, which represents 97.5% response rate. This means a total of 3 operators were not interviewed due to outright refusal. The survey was done using face-to-face interviews with call-backs to completed interviews in some cases.

## 3.0 DATA ANALYSIS

This section presents the findings of the survey and highlights key issues for policy formulation.

### 3.1 General Information

The survey collected general information on the individuals and/or establishments operating in the quarrying sub-sector. The information collected ranges from name and address of business, registration status as well as organization status of the establishments canvassed in the survey.

#### 3.1.1 Locality of Establishments

The locality of the establishments constitutes the address of the business covered in the survey; in other words, it expresses the location or area of the sand and stone miners canvassed. This data on locality is presented in Table 3.1.1.

**Table 3.1.1: Distribution of Respondents by Locality**

Locality	Frequency	Percent (%)
Deep Eye	12	10.0
Dockyard	14	11.7
Hamilton/No.2 River	23	19.2
Hastings	11	9.2
Hill station	11	9.2
John Obey	12	10.0
Mama Beach	5	4.2
Mamba Ridge	11	9.2
Tombo	21	17.5
<b>Total</b>	<b>120</b>	<b>100.0</b>

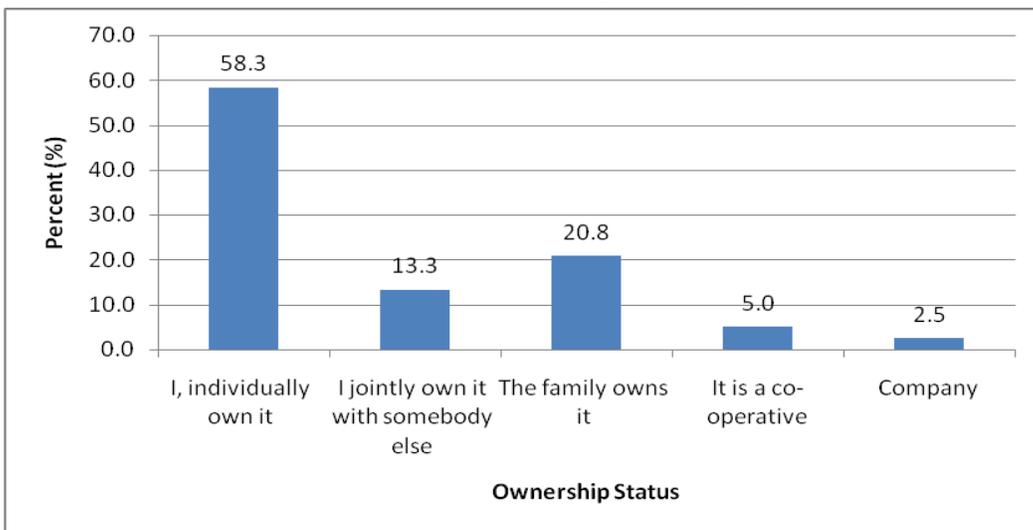
The data in Table 3.1.1 show that, most of the respondents were located at Hamilton/No.2 River area (19.2%); followed by Tombo (17.5%); followed by Kissy Dockyard (11.7%); and John Obey (10.0%) and Deep Eye Water (10.0%). These localities are the spots where sand and stone mining is concentrated. Sand mining in communities such as Sugar Land, Laka and Sussex has been largely banned by the Local Council authorities due to the erosion that resulted from the persistent sand mining activities in

these communities done in the past. Stone mining however is widely spread in the peninsula communities, although in most communities it is done at a lower scale. There is however noticeable increase in sand mining activities at Kissy Dockyard Area, mostly ferried across from Targrin through paddled canon.

### 3.1.2 Organizational Status

The survey collected information on ownership status of businesses and the results are shown in Figure 3.1.2. The results show that of the 120 establishments covered, 58.3% are individually owned, otherwise known as sole proprietorship.

**Figure 3.1.2: Distribution of Establishments by Ownership**



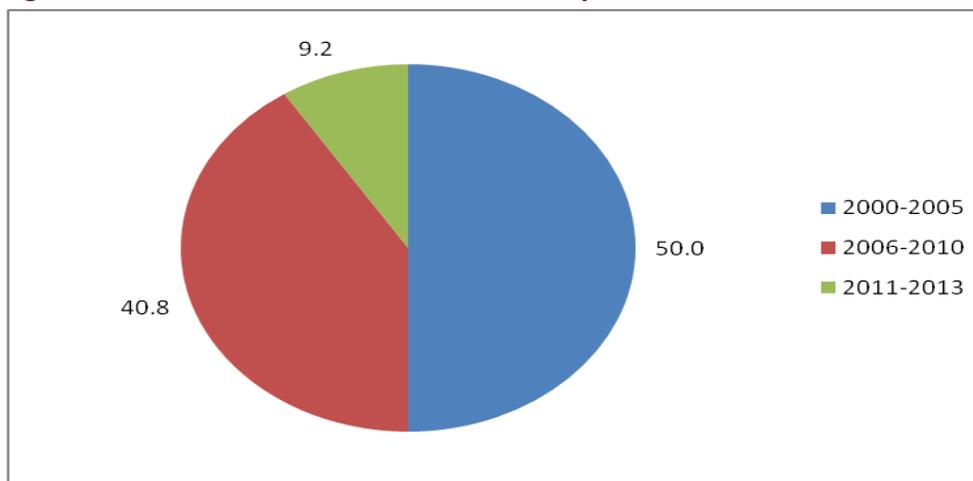
As shown in Figure 3.1.2, there were considerably more Sole Proprietorships (58.3%) than family owned businesses (20.8%) and partnership (13.3%) or cooperatives/groups/association 5.0%). These results underline the small scale nature of business operations in the country and the informal nature of the economy which may be due to the unavailability of funds to undertake such capital intensive activities. There is however a 2.5% proportion of sand and stone mining done by companies, which included the CSC Construction Company, IECC at John Obey and China Railway Construction Company, whose stone-crushing activities were concentrated mainly in and around Hamilton and Number 2 River and John Obey communities.

### 3.1.3 Year of Commencement of Operation

The year of commencement of operation was used to classify the 120 establishments canvassed into:

- 1980-1990
- 1991-2000
- 2001-2012

**Figure 3.1.3: Period of Commencement of Operations**

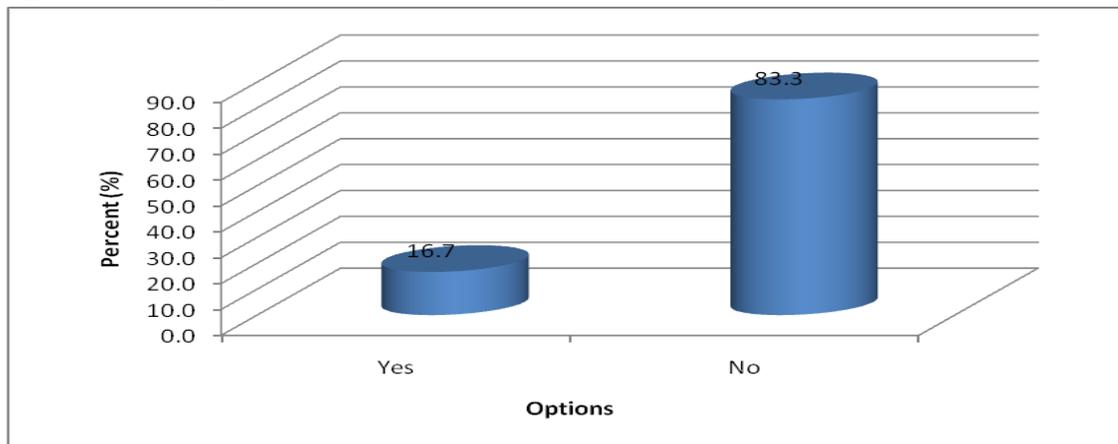


The classification was done in order to isolate the influences of major political decisions on the industrial sector. Half of the households/businesses involved in sand and stone mining were established between 2000 and 2005; followed by those established between 2006 and 2010. This may be due to increased demand for quarrying products as a result of scaling up of construction activities in the capital city and the country as a whole. The increase in construction activities in the country is linked to the expansion in the demand for housing and good roads as part of the reconstruction and revamping of the economic effort after the 10-year civil war.

### 3.1.4 Registration Certificate/License

The survey also asked respondents whether or not their business operations were registered or licensed with the relevant authorities, which in this case refers to the Area Chiefs and Local Council Authorities or the Administrator and Registrar General Office and the results are shown in Figure 3.1.4.

**Figure 3.1.4: Registration Status**

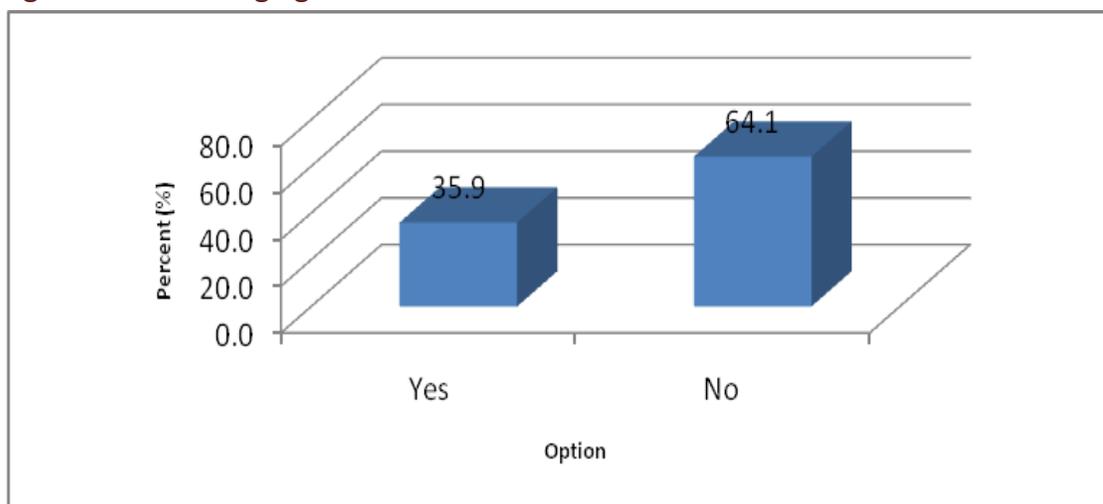


The result shows that only 16.7% of the 120 establishments canvassed have registration or license certificate for operating in the sand mining and stone-breaking quarrying activities in the country. This means that 83.3% is underground and hence operating in the informal sector. It could be that the low capital base of these businesses is responsible for these vast informal operations in the sector, as operators could not afford capital-intensive equipment required for large scale operations. This means that most of sand mining and stone breaking activities are done on a hand-to-mouth basis.

### **3.1.5 Belonging to an Association**

The survey asked whether or not the respondents belong to an association or a group, and the responses are shown in Figure 3.1.5.

**Figure 3.1.5: Belonging to an Association**



The data in Figure 3.1.5 shows that only 35.9% of the 120 respondents belong to an association or group; while 64.1% are individual miners and enterprises operating in the sector.

## 3.2 Operating Characteristics

This section analysis operating characteristics of establishments such as employment, operating revenue, operating expenditure, intermediate consumption and gross value added of establishments for the fiscal year 2012.

### 3.2.1 Employment Categories

Employment constitutes the following categories of workers

**Number of Paid Employees (Total Employment):** This included persons working in the establishment and receiving pay, as well as persons working away from the establishment who were paid by and under the control of the establishment (excluding home workers). These included all workers whether part-time, on paid sick leave or on training.

**Other Workers:** These included all Working Proprietors, Partners and Executive Directors only receiving a dividend or share of profit as payment as well as the unpaid (family) workers and apprentices; but excluded voluntary workers.

**Number of working proprietors:** These were defined as all individual proprietors and partners who were actively engaged in the work of the establishment, excluding silent or inactive partners, whose principal activity was outside of the establishment. This category was not applicable to any incorporated or similar enterprise the ownership of which is represented by holding of equity shares.

**Number of unpaid family workers:** Unpaid family workers referred to persons who lived with the proprietor of the unit and worked regularly for the unit, irrespective of the number of hours worked during the reference period, but did not have a contract of service and did not receive a fixed sum for the work they performed. Unpaid family workers who at the same time were in paid employment with another unit as their principal occupation were not considered as employed in the concerned unit. On the other hand, family workers who receive pay for the work performed and were not in

paid employment with another unit, as their principal occupation were classified as employees.

**Number of Persons Engaged:** This was defined as the total of paid employees and other workers of the business. The following categories of workers were included:

- Unpaid business partners;
- Unpaid family workers;
- Persons working outside the unit who belonged to it (e.g. sales representatives, deliver personnel, repair and maintenance teams) provided that they received a regular salary from that unit;
- Persons on short-term leave (sick leave, annual leave or vacation);
- Persons on special paid leave (educational or training leave, maternity or parental leave);
- Persons on strike;
- Part-time workers on the payroll;
- Seasonal workers on the payroll;
- Apprentices on the payroll;
- Home workers on the payroll, paid for the work done

### 3.3 Detailed Operating Characteristics

#### 3.3.1 Employment Characteristics

Table 3.3.1 shows that sand mining employs the larger part of the 626 persons working in quarrying activities in the localities. This means that of the 626 persons 61.0% were engaged in sand mining activities in the various localities, compared with the 39.0% engaged in stone breaking activities. The results underscore the important role of sand mining as it provides employment for able-bodied youth in the various localities.

**Table 3.3.1: Number of Persons Engaged by Activity**

Activity	Persons Engaged	Percent (%)
Sand mining	382	61.0
Stone-breaking	244	39.0
<b>Total</b>	<b>626</b>	<b>100</b>

### 3.3.2 Intermediate Consumption

This refers to the cost on inputs of production, inputs used in sand mining and stone breaking activities. Such inputs include fuel, lubricant and spare parts for vehicles, license fees paid to local authorities and light instruments.

**Table 3.3.2: Percentage Distribution of Intermediate Consumption (Le'M) by Activity**

Activity	Intermediate Consumption	Percent (%)
<b>Sand Mining</b>	12,651	67.1
<b>Stone-Breaking</b>	6,213	32.9
<b>Total</b>	<b>18,864</b>	<b>100.0</b>

The survey obtained data on the intermediate consumption of businesses engaged in sand mining and stone breaking, and the information is presented in Table 3.3.2. The data in Table 3.3.2 show that intermediate consumption, which is part of the running cost of individuals and businesses surveyed valued at Le 18,864 Million in 2013. Of this amount 67.1% was associated with individuals and businesses operating in the sand mining activities in the data collection centers; while 32.9% of the intermediate cost was associated with stone-breaking activities.

### 3.3.3 Total Turnover/Revenue

Turnover or revenue is income that an individual or a company receives from its normal business activities, usually from the sale of goods and services such as stones or sand clients. This is income received from activities of a particular corporation, company, partnership, or sole-proprietorship. For some businesses, such as manufacturing and/or grocery, most revenue is from the sale of goods.

**Table 3.3.3: Percentage Distribution of Total Turnover by Locality**

Activity	Total Revenue (Le. M)	Percent (%)
<b>Sand Mining</b>	53,621	80.7
<b>Stone-Breaking</b>	12,812	19.3
<b>Total</b>	<b>66,433</b>	<b>100.0</b>

The data in Table 3.3.3 shows that a total amount of Le 66,433 Million was declared as total turnover by operators in the various localities for both sand mining and stone

breaking activities. Of this amount, 80.7% was declared by operators in sand mining, while the remaining 19.3% was associated with stone breaking activities in the localities.

### 3.3.4 Expenditure

Expenditure is an outflow of money to another person or group to pay for an item or service, or for a category of costs. An expense is a cost that is "paid" or "remitted", usually in exchange for something of value. Something that seems to cost a great deal is "expensive". In this case payment to vehicle owners, royalty payment, license fees, payment of commission or wages, purchase of larger and bulkier stones, purchase of fuel, lubricants and spare parts and other cost incurred during the stone-breaking and sand mining activities.

**Table 3.3.4: Percentage Distribution of Total Cost by Locality**

Activity	Total cost (Le'M)	Percent (%)
Sand	12,652	67.1
Stone	6,215	32.9
<b>Total</b>	<b>18,867</b>	<b>100.0</b>

Table 3.3.4 shows that a total cost of Le 18,867 Million was incurred by operators in 2013. Of this total, 67.1% was incurred by sand miners, while 32.9% was incurred by stone breaking activities.

### 3.3.5 Gross Value Added

Gross value added is the difference between total revue received from the sale of stones and sand minus total expenditure (excluding wages or commission paid to breakers or loaders). It is the excess of revue over cost of intermediate inputs.

**Table 3.3.5: Percentage Distribution of Gross Value Added by Locality**

Activity	Gross Value Added (GVA)-Le'M	Percent (%)
Sand	40,969	86.1
Stone	6,599	13.9
<b>Total</b>	<b>47,568</b>	<b>100.0</b>

Table 3.3.5 shows that the gross value added from the sector amounted to Le 47,568 million in 2013. Of this amount 86.1% came from Sand mining activities, while 13.9% came from stone breaking activities.

## **4.0 RECOMMENDATIONS**

It was observed that there was no regulatory framework in place to regulate sand mining and stone breaking activities in the country. Although Local Councils are trying to fill the gap, there is still limited coordination among authorities such as the Head Man/Chief and local council officials. There is therefore need to establish a legal regulatory framework spelling out the coordination mechanism among various stakeholders in the quarrying sector.

Construction companies such as CSC, China Railway, Salcost, etc involved in sand mining and stone breaking should be made to pay compensation to host communities such as at Hamilton as their actions have lasting impact not only on the land to also on the lives and livelihood of such host communities

## APPENDIXES

### Appendix 1: Mining Sites and Number of Persons Involved

Quarry Sites Investigated	Nature	Persons/Est. Involved
Bololo (Goderich)	Artisanal	60
BAO Ltd. Quarry (Goderich)	Industrial and Artisanal	20
CPA Resources Quarry (Goderich)	Artisanal	3
Industrial		
Mamba Ridge Quarry (Kissy)	Artisanal	37
Salcost Quarry (Near Bo)	Industrial	1
Tiaياما – on the River Tiai.	Artisanal	29
Lembema/Nyeyema – on the River Sewa	Artisanal	28
Gondama – on the River Sewa	Artisanal	37
Tulurma/Jagbwema – on the River Moa	Artisanal	24
Hamilton Beach	Artisanal	50
Lakkah Beach,	Artisanal	41
Adonkia	Artisanal	37
Sussex	Artisanal	56
Number 2 River	Artisanal	60
Tokey	Artisanal	30
Big Water	Artisanal	20
Black Johnson	Artisanal	10
John Obey	Artisanal	30
Mama Beach	Artisanal	33
Tombo	Artisanal	40
Tissana	Artisanal	15
Martin Kay,	Artisanal	20
Waterloo,	Artisanal	38
Deep Eye Water	Artisanal	33
Devil Hole	Artisanal	24
Rokel	Artisanal	17
Sugar Land	Artisanal	39
<b>Total</b>		<b>832</b>

*CEMMATS Report, 2009 and SSL Sand Survey Report, 2010*

## Appendix 2: Survey Questionnaire



STATISTICS SIERRA LEONE

### THE SURVEY OF SAND EXTRACTION AND QUARRYING ACTIVITIES, 2013

**Authority and Confidentiality:** The survey is conducted under the authority of the Statistics Act, 2002, which means that Completion of this questionnaire is a legal requirement by all businesses or individuals selected for the survey. Also the Statistics Act 2002 provides for the confidentiality of the data collected, as a result the data reported in this questionnaire will be treated in strict confidence and published only in aggregates.

**Coverage:** The survey covers all businesses or individuals engaged in sand extraction and/or stone-breaking in this community. Please complete (or assist the Enumerator to complete) this questionnaire for your business unit or your activity located in this community or in Sierra Leone as a whole.

**Objective:** This survey is conducted in order to obtain relevant data on quarrying activities in the country, which is an important part of the mining and quarrying industry. Such data is used to compile the Gross Domestic Product (GDP), which is a vital indicator used to analyze the performance of the economy.

#### **A. General Information**

- 1a. Name of Business (If No name, write the proprietor's Name).....
- 1b. Address of business.....
- 1c. Locality..... District .....
  
2. How many branches/outlets do you have for which data is being provided? Number...
3. Name of Respondent/Contact Person:..... Designation: .....
- Mobile/Tel No: ..... Sign (and official stamp if available) .....

4. Which of the following best describes the ownership of this business: (Circle one only)
1. I, individually own it
  2. I jointly own it with somebody else
  3. The family owns it
  4. It is a co-operative
  5. It is a limited liability company
  6. Other ownership (specify).....
5. Which year did you start this business? Year .....
6. Do you have a registration certificate or license to carry out this activity?  
 1- Yes            2- No
7. If yes, which year was this business registered or licensed? Year.....
8. How many persons are currently engaged with this business (paid or unpaid)?  
 Number .....
9. What is the main kind of activity you currently engaged in? 1-Sand extraction 2-  
 Stone-breaking 3-both

**Section B: Sand Extraction/Stone-Breaking**

10. Which work do you do:    1-Sand miner    2-Stone-breaker    3-Driver/owner
11. Do you belong to any Association?    1. Yes    2. No
- 11a. Name of Association .....
- 11b. Contact Person ..... 11c. Mobile no.....
12. Number of Vehicles registered with this Association .....
13. Are there other Vehicles in this Business that are not registered with this Association  
 1-Yes            2-No
14. If yes, how many of such Vehicles? Number .....
15. On average, how many trips of sand/stone do you load or drive per day? Number  
 .....

16. Of this number, how many are double trips made .....

17. What is the average cost of extracting/loading a trip of sand/stone in 2013?

a) Single trip ..... Mass (kg) of sand/stone.....

b) Double trip ..... Mass (kg) of sand/stone.....

18. What is the average value of a trip in 2013?

a) Single trip .....

b) Double trip .....

19. Please provide estimates for the following for 2013:

a) Average number of gallons of Fuel consumed per day .....

b) Average cost on maintenance and spares per month .....

c) Other costs excluding Vehicle and Driver licenses .....

d) Total amount of wage/salary paid to workers (if any) .....

20. How many days a week did you usually work in 2012 (Jan-Sept)? Number.....

21. On average, how many single trips of sand/stone did you sell/load per day in 2013?  
Number .....

22. On average, how many double trips of sand/stone did you sell/load per day in 2013?  
Number .....

23. The vehicles used, were they registered/licensed with the Sierra Leone Road  
Transport Authorities (SLRTA)?

1 Yes

2 No

Name of Enumerator: .....

Date: ..... Signature: .....

Name of Supervisor: .....

Date: ..... Signature: .....