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MILLENNIUM
CHALLENGE CORPORATION

UNITED STATES OF AMERICA



Republic of Sierra Leone

SIERRA LEONE CONSTRAINTS ANALYSIS REPORT:

A Diagnostic Study of the Sierra Leone Economy; Identifying Binding Constraints to Private Investments and Broad-based Growth

FINAL REPORT

An Analysis Prepared by the Government of Sierra Leone with Technical Assistance from the Millennium Challenge Corporation of the United States of America, for the Development of a Millennium Challenge Compact

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Acronyms and Abbreviations

A4P	-	Agenda for Prosperity.
AfDB	-	African Development Bank
AICD	-	African Infrastructure Country Diagnostic
ARPU	-	Average Revenue Per User
ATM	-	Automated Teller Machines
BSL	-	Bank of Sierra Leone
CA	-	Constraints Analysis
CLTS	-	Community-Led Total Sanitation
CWIQ	-	Core Welfare Indicator Questionnaire
DALY	-	Disability-Adjusted Life Year
DIA	-	Digital Access Index
EEZ	-	Exclusive Economic Zone
EU	-	European Union
FAO	-	Food and Agricultural Organization
FDI	-	Foreign Direct Investment
GDP	-	Gross Domestic Product
GIR	-	Gross Intake Rate
GNI	-	Gross National Income
GSM	-	Global System for Mobile
GVWC	-	Guma Valley Water Company
HDI	-	Human Development Index
HDR	-	Human Development Report
HRV	-	Hausmann, Rodrik and Velasco
ICT	-	Information and Communication Technology
JSS	-	Junior Secondary School
KWh	-	Kilowatt Hour
LIC	-	Low Income Countries
MAFFS	-	Ministry Of Agriculture, Forestry and Food Security
MCC	-	Millennium Challenge Corporation
MEST	-	Ministry of Education, Science and Technology
MMA	-	Mines and Minerals Act 2004
MoFED	-	Ministry of Finance and Economic Development
MT	-	Metric Tonnes
MT/ha	-	Metric Tons per Hectare
MW	-	Megawatts
NATCOM	-	National Telecommunications Commission
NCDT	-	National Conference on Development and Transformation
NMA	-	National Minerals Agency
NPA	-	National Power Authority
NPISH	-	Non- Profit Institutions Serving Household
NRA	-	National Revenue Authority
NSADP	-	National Sustainable Agricultural Development Plan
OUA	-	Organization of African Union.

PPP	-	Purchasing Power Parity
PRSP	-	Poverty Reduction Strategy Paper
SALWACO	-	Sierra Leone Water Company
SAT	-	Satellite
SCP	-	Small Holder Commercialization Program
SIERRATEL	-	Sierra Leone Telecommunications Company Limited
SLEDIC	-	Sierra Leone Export Development and Investment Corporation
SLET	-	Sierra Leone External Telecommunication company
SLHIS	-	Sierra Leone Integrated Household Survey
SLIEPA	-	Sierra Leone Investment and Export Promotion Agency
SLNTC	-	Sierra Leone National Telecommunications Company
SLRA	-	Sierra Leone Roads Authority
SLRTA	-	Sierra Leone Road Transport Authority
SME	-	Small and Medium Enterprises
SSA	-	Sub Saharan Africa
SSL	-	Statistics Sierra Leone
SSS	-	Senior Secondary School
TFP	-	Total Factor Productivity
TVET	-	Technical and Vocational Education and Training
UNHDP	-	United Nations Human Development Program
UNICEF	-	United Nations Children's Fund
VIP	-	Ventilated Improved Pit
VoIP	-	Voice Over Internet Protocol
WDI	-	World Development Indicators
WEF	-	World Economic Forum
WHO	-	World Health Organisation

Executive Summary

Sierra Leone has made notable progress towards achieving meaningful economic growth and development; the progress has been evident in the areas of democracy, economic management and public service delivery. The country has developed and implemented 3 generations of Poverty Reduction Strategy Papers (PRSPs); it also quite recently concluded the Sierra Leone Conference on Development and Transformation (SLCDT). One of the key outcomes of this conference was a national consensus for Sierra Leone to aspire to middle income status within the next 30 years. The country, however, has pressing short to medium term issues to address, while it positions itself for take-off. For example, Government fiscal conditions continue to face strong pressures against the backdrop of increasing outlays on recurrent as well as capital expenditures. The infrastructure needs of the country remain substantial, despite recent efforts to address critical areas.

In December 2012, Sierra Leone was declared eligible for Compact support from the Millennium Challenge Corporation of the United States of America. This creates an opportunity for the Government, in partnership with the Millennium Challenge Corporation (MCC), to develop a set of projects that should help address critical bottlenecks (or constraints) in the economy. The Compact Development process has a number of milestones, the first of which is the Constraints Analysis. The Constraints Analysis (CA) conducted for the purpose of developing a Compact with the MCC does not seek to identify several areas for programme intervention. It seeks to identify the most critical problem, or between two to four of the most critical problems, with a view to concentrate efforts to address such problems.

The CA is based on a methodology developed by Hausmann, Rodrik and Valesco, (2005) referred to here as the HRV Method, which in recent years has been met by increasing acceptance in economic analysis and policy discussions. The fundamental element of the HRV analysis is that, in a balanced growth path, the rate at which an economy grows is a function of the difference between the expected return to asset accumulation and the costs of those assets as seen by the private agents that are accumulating those assets. The analysis, therefore, starts by asking what is constraining private investment? Where it is determined to be low, the possible causes are investigated along three broad strands:

- Whether it is due to costly finance, (both foreign and domestic finance); or
- Whether it is due to low social returns, which can be attributed to weaknesses in infrastructure, natural or human capital levels; or
- Whether it is due to low appropriability of private returns due to failures in Government that create macroeconomic and microeconomic risks, or failures in the markets.

The methodology utilizes ‘differential diagnosis’ to determine whether a particular aspect constitutes a binding constraint to private investment and economic growth. Four particular tests are used to identify whether a constraint is binding or not and they are: Shadow Price, Growth, Circumvention and Non-reliance. The tests were carried out on several areas of the economy, including finance, infrastructure, human capital, natural capital, microeconomic risks, macroeconomic risks, and innovation. The following table summarises the findings of this study, along the lines of the broad areas of analysis.

Indicator Area	Conclusion	Remarks
Is private investment too low in Sierra Leone?	Yes	Especially domestic private investments
Is the cost of foreign finance too high?	No	Relatively high levels of FDI, although there is no evidence of domestic firms borrowing internationally
Is the cost of local finance too high?	Possibly. Despite high nominal interest rates, private investment is more constrained by low returns	Nominal interest rates are high, real interest rates are not presently too high. Feedback from consultations suggest that other constraints are more likely binding.
Is 'low social returns' a problem for investments in Sierra Leone?	Yes, weak infrastructure poses a serious 'strain' on private investment and returns	The evidence highlights lack of power to be a potentially binding constraint to private investments and growth, along with poor rural road transport network conditions and inadequate water supply and sanitation infrastructure
Is 'low appropriability' of returns a problem for investments in Sierra Leone	Partially. There is evidence of some micro risks that potentially introduce high shadow prices.	Issues with policy and institutional effectiveness create microeconomic risks that constrain investment throughout the economy.

The following features of the economy are highlighted in this report:

- Sierra Leone has maintained a modest growth trajectory over the past decade averaging 5 percent in GDP growth; however, the gradient of this trajectory needs to be dramatically increased to achieve average annual GDP growth rates in excess of 13 percent required to reach the targeted middle income status envisioned under the Agenda for Prosperity.
- Private investments, which should propel growth, have been considerably low due to a number of factors. This aspect of the economy, particularly domestic private investments, needs to significantly increase in order to ensure broad-based economic growth and development in the country.
- Private returns to investments are generally low and vulnerable to a number of macroeconomic and microeconomic risks. Large companies are more able to insulate themselves against such risks.
- Low social returns to private investments, particularly domestic private enterprise, are made worse by a weak economic infrastructure base in power and roads; and businesses that cannot find effective circumvention measures for these constraints remain small, informal or virtually non-existent.

Based on the overall evidence, three potentially binding constraints to broad-based private investments and economic growth in Sierra Leone have been identified in this report:

1. The **lack of adequate, reliable and affordable access to electricity supply** to support the emergence and growth of a wide range of economic activities.
2. The **poor conditions of secondary and feeder road networks**, which provide access to productive agricultural regions of the country with high potentials to drive growth.
3. The **lack of access to clean water and sanitation services**, leading to high incidences of water-borne diseases, which have implications for labour productivity and household expenses. While water is not a problem in terms of its natural availability, collection, distribution and other problems have led to high financial cost of accessing safe water or long travel distances and times to access them.

In addition, the major underlying syndrome contributing to these constraints is:

- **The lack of adequate policies and institutional effectiveness** – the ability of policies and government institutions to protect returns to investment and promote the efficient provision of inputs to production – which hinder the improvement of these infrastructure constraints, create microeconomic risks that contribute to a large informal sector and constrain investment throughout the economy.

There are other areas that are not presently identified as the most binding constraints to economic growth, but are likely to emerge as serious constraints in the medium term if decisive actions are not taken. The following highlights these areas and provides brief descriptions of the findings therein:

1. **Local Finance**: The short-term nature of domestic finances; coupled with high lending rates could potentially exert constraints on domestic private investments, particularly in sectors with high informality or small-scale business/investment activity, like agriculture. Although there are anecdotal evidences of this problem, nationwide consultations in August 2013 affirmed that Sierra Leoneans see the present infrastructure conditions as a greater impediment to investment.

2. Land tenure and property rights: A dearth of quantitative data prevents land tenure system with land tenure regimes in comparator countries and conducting the four tests of the HRV methodology. However, a study of the freehold and communal land tenure system illustrates how the risks and shadow prices associated with getting access to secure title/rights potentially limits large, medium and household-level investment, particularly in the agriculture sector. Participants in nationwide consultations also consistently ranked property rights as less binding than other constraints identified in this report.
3. Taxes: Tax revenues continue to be low, both as a percent of GDP and in relation to Government expenditure targets; this poses serious potential constraints on Government's ability to meet its objectives in provision of public goods and services as well as for public investments. Policy and institutional ineffectiveness is a major obstacle to better revenue collection, and the low revenues contribute to further institutional ineffectiveness.
4. Human Capital: Health: The data suggests that health factors in general pose a high shadow price to the economy. In the short term, areas of reduced labour productivity due to days lost to various forms of illnesses and high out-of-pocket expenses by households pose serious potential constraints. Long-term growth and productivity levels could be reduced due to high infant mortality levels and high stunting levels in children. However, recent improvements in health conditions have brought Sierra Leone nearer to conditions in comparator countries, and participants in nationwide consultations ranked it relatively low in their ranking of constraints to growth.
5. Human Capital: Education: Although there is some evidence of an emerging skills gap, human capital does not presently pose a serious constraint to private investments and growth. The return to education estimated from Mincerian Regressions is low overall, but there is a high return on education for women and low participation rates for women in the labour force. This seems to suggest that women may not have had historically fair and equal chances for education and formal sector employment. There is some evidence indicating a mismatch between trade technicians and professional skills required particularly in the heavy industries, ICT and other specialised service sectors and those readily available in the market.

As mentioned previously, the Government of Sierra Leone, through the Millennium Challenge Coordinating Unit, undertook a nationwide consultations campaign in July/August 2013 to validate these conclusions and better understand the immediate causes of these constraints. These nationwide consultations included plenary and focus group discussions with approximately 860 representatives from civil society, women and youth organizations, business associations, and local and national government stakeholders across Sierra Leone's district headquarter towns and the capital, Freetown. A presentation summarizing the results of these consultations is attached as Annex I to this report. Nationwide consultations largely validated the conclusions of this report, and support prioritization of the binding constraints noted above, while also acknowledging the continuing importance and persistence of these other serious constraints.

Full Report Starts Overleaf

1 Introduction

Sierra Leone has made significant progress over the past 12 years since the end of a decade-long civil conflict, which arguably dealt a final blow on an economy that was already experiencing serious difficulties in the preceding decade. Between 2002 and 2012, the country has enjoyed relative peace and stability; it has consistently upheld democratic principles of governance, having held three (3) consecutive general and Presidential elections, all of which received international acclaim as being free and fair. Successive Governments have prioritized poverty reduction through economic growth in setting national economic plans; the country is presently implementing a 4th Generation Poverty Reduction Strategy Paper (PRSP).

The country achieved macroeconomic stability and experienced modest growth performance in the period following the civil war (2002–2007), as it successfully implemented a number of stabilization and growth programmes with key multilateral and bilateral development partners. In the subsequent period (2008–2012), the country experienced significant levels of Foreign Direct Investments (FDI). This has contributed to increases in GDP growth rates which reached 15.2 percent in 2012 (International Monetary Fund 2013). Other recent successes achieved by the Government in policy reforms and public service delivery qualified Sierra Leone for a ‘Compact’ partnership status with the Millennium Challenge Corporation (MCC), an innovative foreign aid Agency of the United States America that focuses on global poverty reduction through economic growth. The analysis carried out herein is done within the framework of the Compact Development process with the MCC. The objective of the analysis is to identify the most critical problems (or binding constraints) facing the economy with respect to private sector investments.

In contrast to other national growth and poverty reduction policy analysis, which have a multi-sector approach to developing programmes and addressing economic issues, the Constraints Analysis conducted for the purpose of developing a Compact does not seek to identify several areas for programme intervention. It seeks to identify the most critical problems, with a view to concentrating efforts at addressing such problems. The diagnostics, therefore, check various issues; but with the ultimate objective of determining the most pressing issues that needs to be addressed. The analysis in this study is organized as follows:

Chapter 2 presents an introductory overview of growth performance in the Sierra Leone economy, covering various time horizons, as a context for subsequent analysis

Chapter 3 presents the analytical framework and methodology; as well as the key sources of data utilized herein

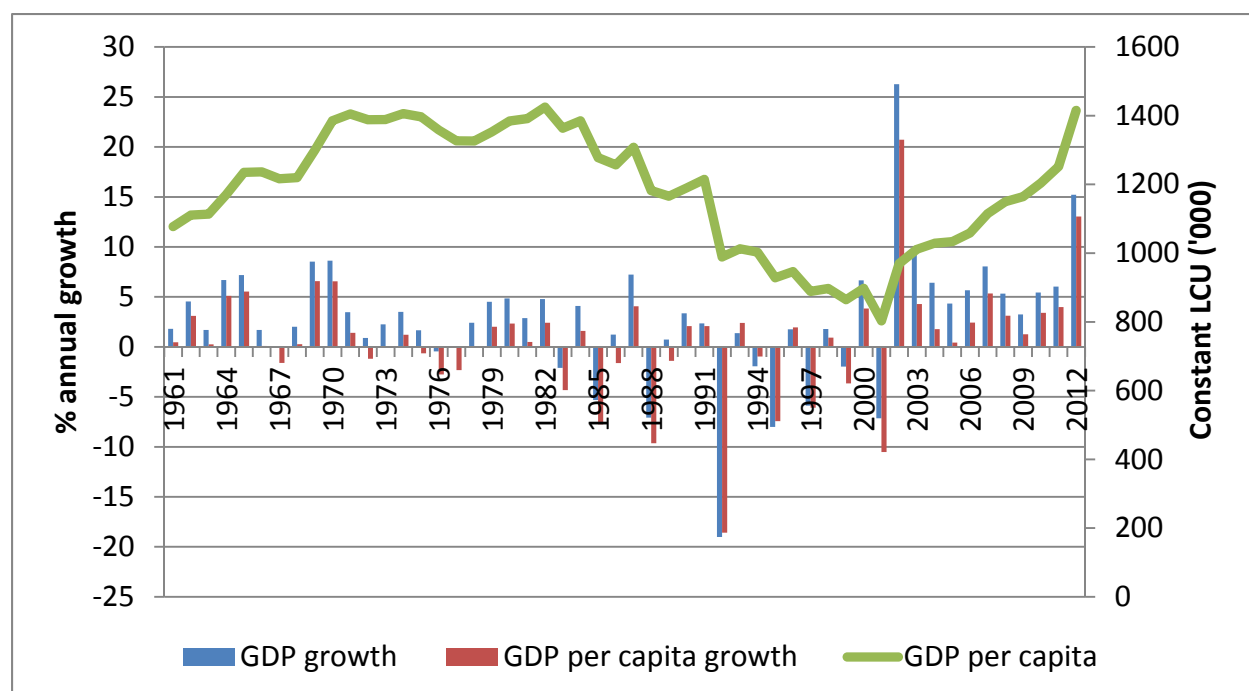
Chapters 4 through 10 examine the key issues in the diagnostics, including issues around finance on the one side of the diagnostic tree; and those of economic returns to private investments .

Chapter 11 provides a summary conclusion of the evidence presented in the analysis, making a determination of the most pressing issue(s) facing private enterprise and growth in the economy.

2 Economic Growth: Historical Perspective and Overview

Sierra Leone is a country that has always been defined and characterised by its rich natural resource base; its proven and economically viable deposits of mineral resources like diamonds, rutile, iron ore, bauxite and gold; as well as its relatively vast space of arable land for agricultural cultivation of a wide range of crops including rice, cocoa, coffee, oil palm, sugar cane and vegetables. For a little over a decade immediately following independence from colonial rule in 1961, the country enjoyed periods of good socio-economic performance, with sustained per capita real GDP growth averaging around 4 percent per annum, a relatively high level by regional standards; and an average inflation rate of about 6 percent (Davies, 2001). The country also recorded good social indicators in the areas of health and education. By all indications, Sierra Leone's economy was classified as a buoyant and steadily growing economy.

Figure 2-1 Sierra Leone: GDP per capita and annual growth, 1961-2012



¹LCU – Local Currency Unit

Source: World Development Indicators, 2013

Figure 2-1 shows the trend in the country's growth performance for the period 1961 to 2012. One notes that during the mid-1970s to early 1980s, the country experienced adverse economic shocks, which, when coupled with problems of macroeconomic management, resulted in overall economic decline that persisted until the advent of a civil conflict in 1991 that lasted for 11 years. In the mid to late 1970s, Sierra Leone's external sector position was seriously affected by

¹ LCU is the acronym for local currency units

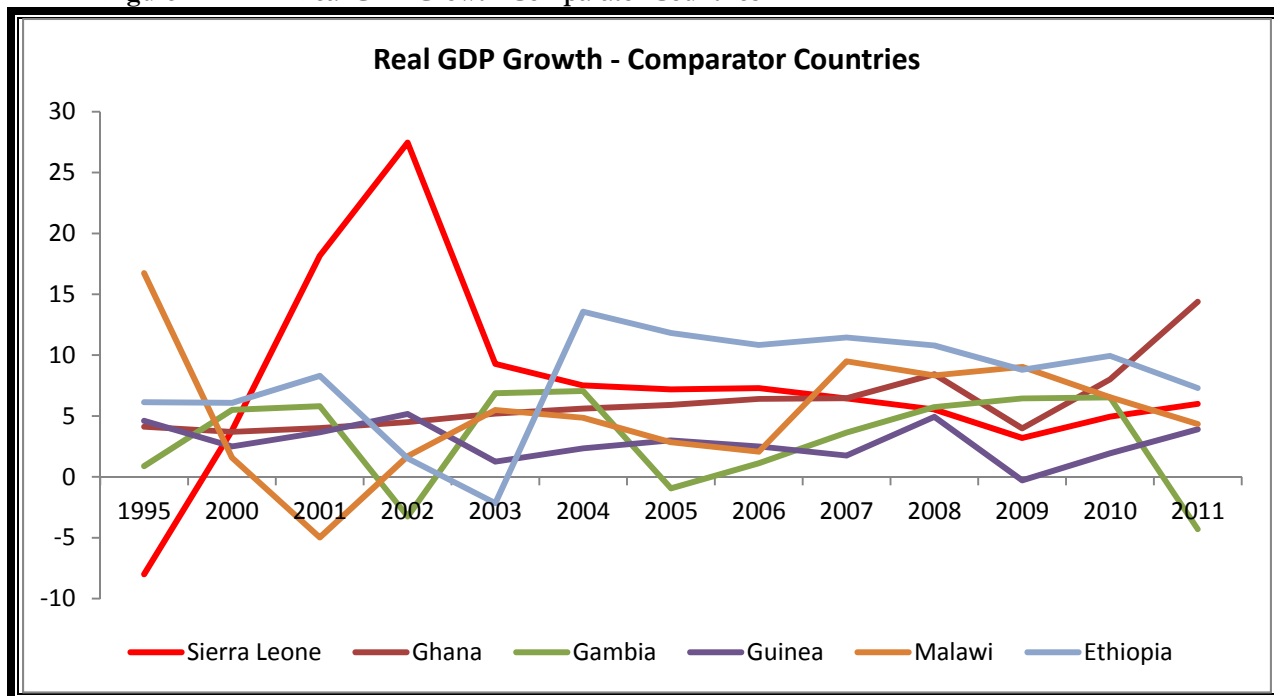
a dramatic drop in the global market prices of iron ore, which was a major foreign exchange earner for the country during the period; and a significant increase in international oil and petroleum product prices, which was also a major import item for the economy (Johnson, 2012). Around the period leading to the end of that decade, a decision was made to host a Summit of the Regional body, the Organisation of African Union (OAU). Government, in meeting the standards of hosting the OAU, embarked on infrastructural investments that included the construction of new roads, villas for presidents and/or their representatives², hotels, and an international conference centre. However, because government was constrained financially, it had to finance these projects from domestic and external borrowing which created significant fiscal imbalances in the economy. The effects of these external and fiscal imbalances during the ensuing decade contributed to the adverse movements in per capita real GDP growth, which dropped by an annual average of 2 percent in the period; an increase in inflation rates to an annual average of 40 percent; and a depreciation of the exchange rate by an annual average of 24 percent relative to the United States Dollar (Kumah & Sandy, 2012). By the end of the 1980s, the economy was near collapse, characterised by declining GDP per capita, rapid inflation, and a severe external payments imbalance. Which preceded the war period from 1991 to 2001. See Figure 2-2 for real GDP growth among comparators.

The post war period (2001 – 2011), commonly known as the period of ‘economic recovery,’ saw encouraging growth, during which real GDP grew by an average of 5 percent (Johnson, 2012). Despite the huge challenges that faced the country, recovery was steady during the period. After an initial post-war surge, economic growth was sustained at an annual average of 7.6 percent from 2003 to 2007, which in comparative terms surpassed Sub-Saharan Africa average (5.7 percent) and the average of the heavily indebted poor countries (5.4 percent) and it records the best performance since 1980 (*Sierra Leone Investment Policy Review, 2010*). However, this growth performance was driven largely by the performance of the two key sectors in the economy: agriculture and mining. The services sector (transport, communication, trade and tourism) also played a contributing role.

However, the key question being asked is whether this high and promising growth recorded in recent years was inclusive and can be sustained, taking into consideration the fact that over 50 percent of Sierra Leoneans live below the poverty line. Broad-based growth that allows the poor to contribute to and benefit from this recorded high growth is the focus of this study. Broad-based growth is a necessary and crucial condition for poverty reduction taking into consideration its being broad based across sectors and that it includes the country’s labour force.

² Sixty (60) Presidential Villas were constructed for this event.

Figure 2-2 Real GDP Growth-Comparator Countries³



Source: World Development Indicators, 2012

In Sierra Leone, over 60% of the population lives in rural areas, and agriculture, including forestry and fisheries, still accounts for the largest GDP share - estimated at 42% for 2013. Agriculture is also the largest employer in the country, according for over 70% of the current labour force. (African Development Bank, 2013)

However, the manufacturing sector despite contributing only about 5 percent of GDP is important to the sustainable economic development of Sierra Leone.

2.1 Summary Poverty Profile

Sierra Leone is among the poorest countries in the world. According to the 2012 Human Development Index (HDI), Sierra Leone ranks 177 out of 187 countries (UNDP, 2012). Life expectancy at birth is 48.1 years; GNI per capita in Purchasing Power Parity (PPP) terms (2005 international \$) is 881; HDI value for 2012 is 0.359; Multidimensional Poverty Index (MPI)⁴ value is 0.439.

³The comparators are reduced to ensure readability of the Sierra Leonean situation. And this applies in most other instances in which line graphs are used.

⁴The MPI is the proportion of the population that is poor as a result of the intensity of deprivations in the areas of education, health and standard of living.

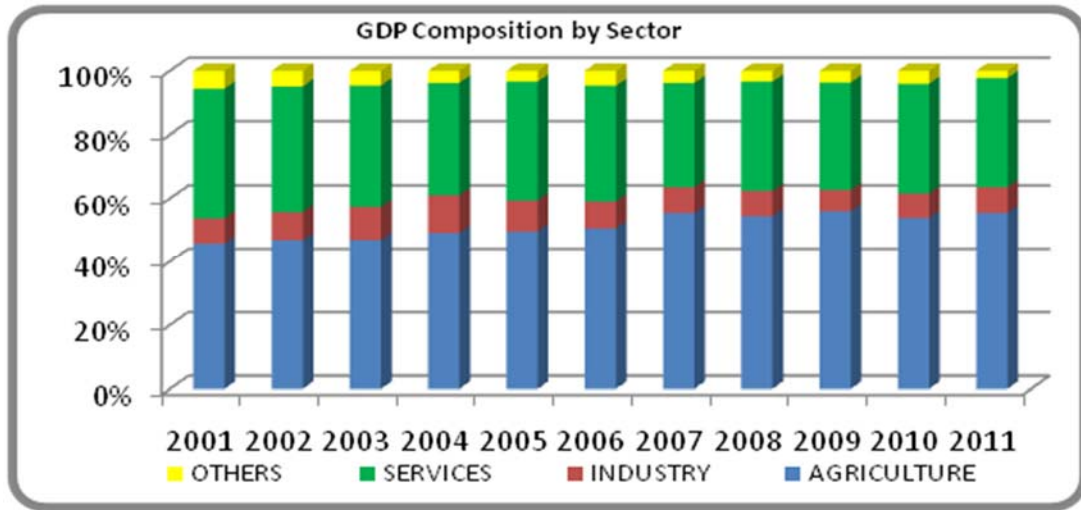
There is widespread poverty and income inequality in Sierra Leone. This is related to poor access to education, health, water and sanitation, low incomes and limited employment opportunities. The national poverty line including food and basic needs is about Le 1,625,568 per adult equivalent per year in 2011. The 2013 poverty profile report for Sierra Leone indicates that poverty and inequality are declining. The incidence of poverty declined from 66.4% in 2003 to 52.9% in 2011, and the poverty gap declined from 38.9% to 16.1% (World Bank, 2013). Rural and urban poverty declined from 78.7% in 2003 to 66.1% in 2011 and from 46.9% in 2003 to 31.2% in 2011 respectively. However, even though urban poverty declined by 15.7 percentage points, poverty in the Capital city increased by 7.1 percentage points from 13.6% in 2003 to 20.7% in 2011.

Sierra Leone's economic growth over the last decade generally has been pro-poor. Between 2003 and 2011, average consumption for the poorest 40% of the population grew 5.1%, versus 2.9% for the entire population. It is even more evident at the extremes of the income distribution. Consumption for the bottom decile grew 6%, while it only grew 0.5% for the top decile. In addition, the national inequality levels decreased from 0.39 in 2003 to 0.32 in 2011 (World Bank, 2013).

2.2 GDP Growth Performance

In the 1980s, the economic structure of Sierra Leone was based mainly on domestic activities – specifically the agricultural and service sectors, which together contributed over 80% of GDP; while exports concentrated on few minerals notably diamonds, gold, rutile and Ilmenite (see Chapter 8 on innovations for detailed analysis). While there was a burgeoning tourism industry, contributing an average of 18% of service GDP for the period 2001 - 2011, the decade was also marked by a relative decline in the mining sector's contribution to GDP, a decrease of about 30% from 2004 - 2011. The structure of the economy remained relatively unchanged over the post-war period. Agriculture maintained a central role in the economy, contributing about half of GDP followed by the service and industrial sectors respectively. Figure 2-3 shows the composition of GDP for the period 2001 – 2011.

Figure 2-3 GDP Composition by Sector

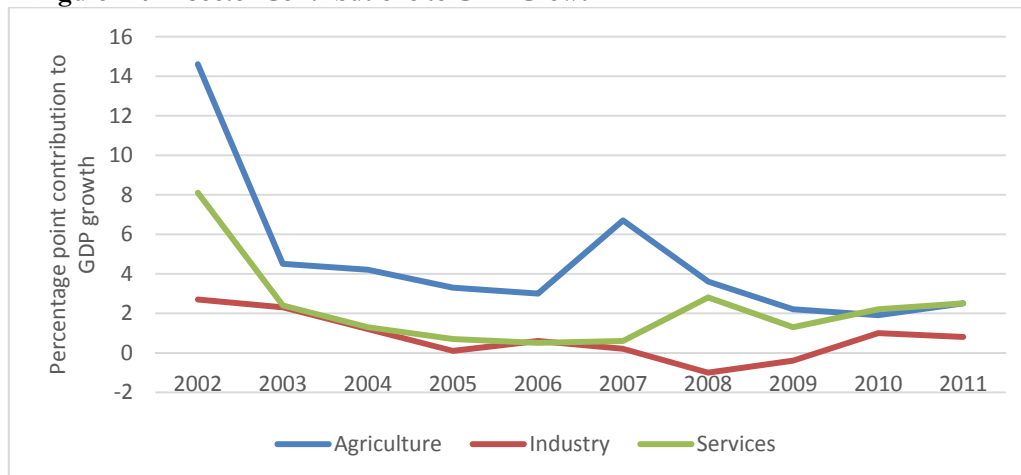


Source: Statistics Sierra Leone, 2012

From 2001 to 2006, while the service sector grew at an annual average of 6 percent, industry (including mining and manufacturing) and agriculture grew at 14 and 13 percent, respectively. During this period, the transport, communication, finance and real estate sub-sectors were the main drivers behind the services sector’s growth. In the agricultural sector, growth was experienced mainly in crops and to a lesser extent in fisheries, while in the industrial sector, mining and construction activities compensated for slow growth in manufacturing. It can be observed that for the period, agriculture remained the most important contributor to GDP.

Agriculture continues to be the backbone of the economy, employing the greatest percentage of the workforce in the country. To have a broader view of the contribution of each sector to GDP growth, Figure 2-4 presents the sectorial contribution to GDP growth.

Figure 2-4 Sector Contributions to GDP Growth



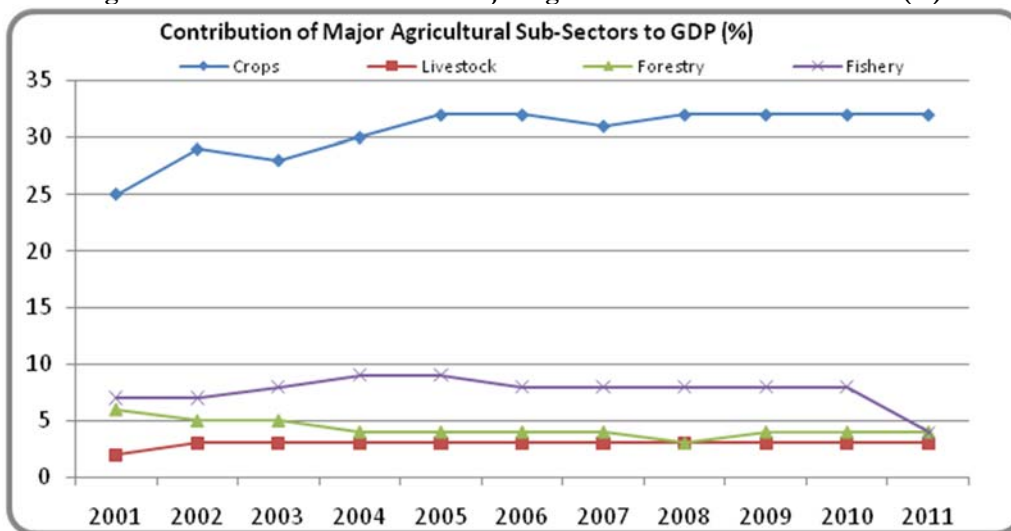
Source: Statistics Sierra Leone, 2012

2.3 Agricultural Sector Analysis

2.3.1 Contribution to GDP

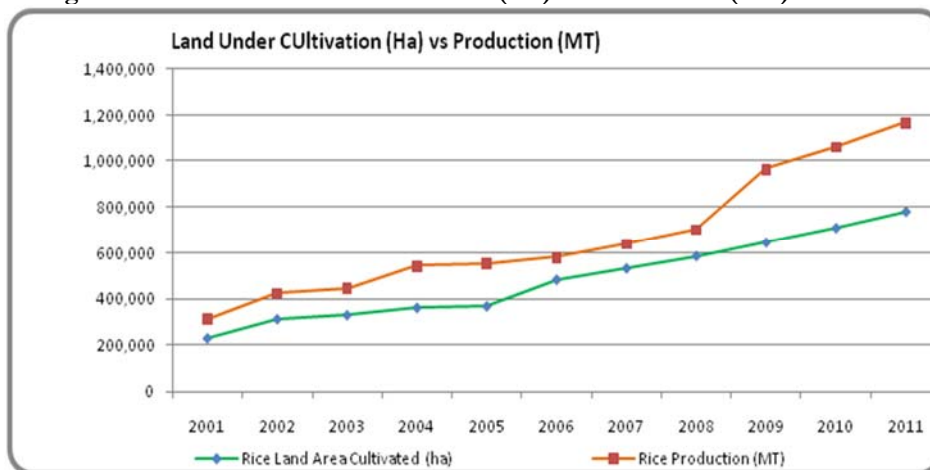
Agriculture, including fisheries and forestry, has been the most significant sector in the economy of Sierra Leone, contributing close to 45% of the country's Gross Domestic Product (GDP) as well as employing about 60% of the labour force between 2001 - 2011. As shown in Figure 2-5, the crops sub-sector dominates the sector followed by fisheries. Contribution of the forestry sub-sector has declined over the years whilst livestock has maintained a steady trajectory over time. From Figure 2-5 it can be seen that national crop production represents two-thirds of agricultural GDP.

Figure 2-5 Contribution of Major Agricultural Sub-Sectors to GDP (%)



Source: Ministry of Agriculture Bulletin (2012)

Figure 2-6 Land under cultivation (Ha) vs. Production (MT)



Source: Ministry of Agriculture and Food Security (2012)

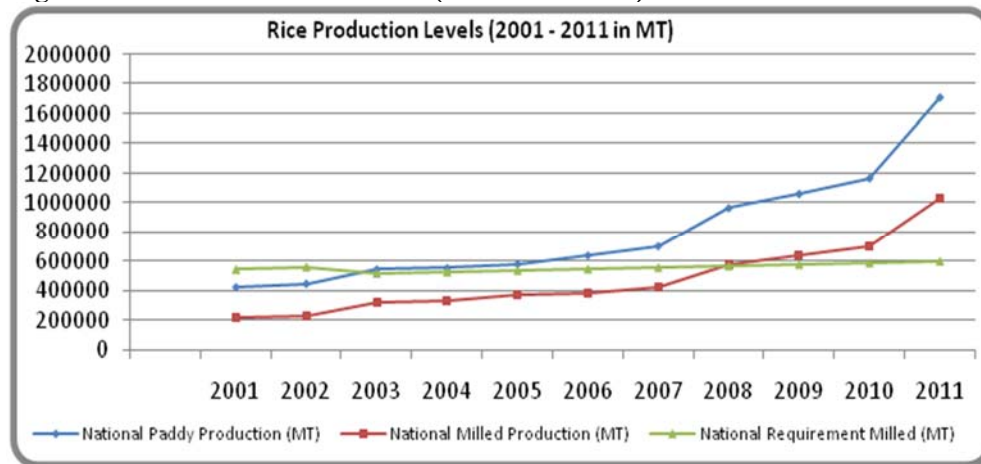
Most of the land under cultivation is dedicated to food crops with rice as the principal crop. As we can see from Figure 2-6 the land under cultivation has quadrupled from 2001 to 2011. Rice is

commonly cultivated under mixed cropping with cassava, maize, millet, groundnut and sweet potatoes in varying proportions.

2.3.2 Rice Production

Rice is by far the most important crop not just as a staple, but in terms of huge expenditure on its import, value in trade and contribution to agricultural GDP. The crop subsector is by far the most important contributor to agricultural GDP as it contributes about 75% to agricultural GDP. Annual per capita consumption of rice is amongst the highest in Sub-Saharan Africa, estimated at 104 kg. It is estimated that domestic production of milled rice currently accounts for about 75% of the total annual national requirement for rice of 557,297 Metric Tonnes prior to 2008 (Ministry of Agriculture Forestry and Food Security - MAFFS) as indicated in Figure 2-7. However, post 2008 shows the pattern has changed as milled rice production outweighs the national requirement.

Figure 2-7 Rice Production Levels (2001 - 2011 in MT)



Source: GoSL Ministry of Agriculture and Food Security, 2012

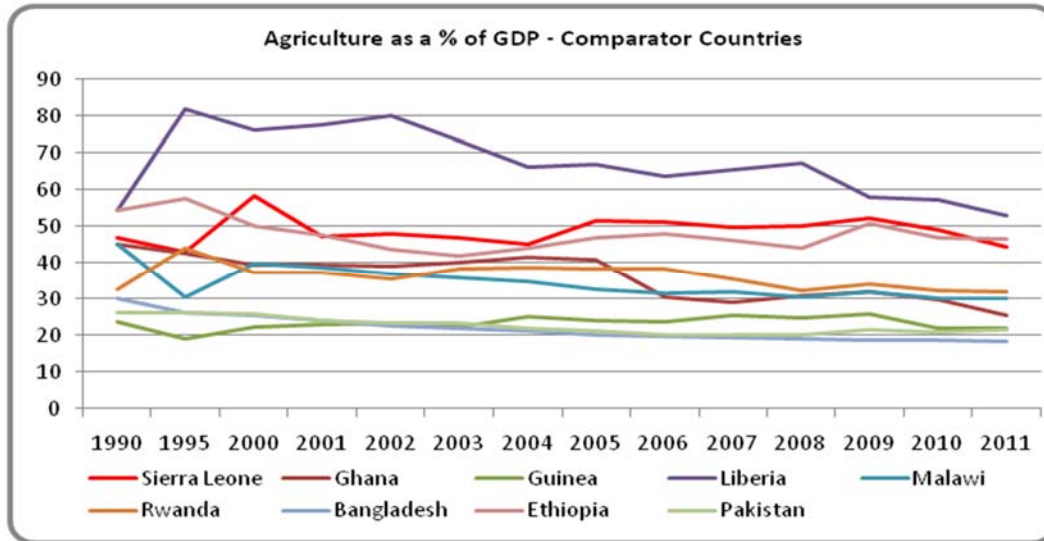
Figure 2-7 above shows rice production for the period under review. The surge in rice production from 2008 to 2009 was as a result of government's increased effort to support agriculture. This saw an increase in budgetary provision and donor support hence increasing agricultural inputs to farmers.

2.3.3 Comparative Country Analysis

The relative contribution of agriculture to the country's output can better be understood when examined within the context of comparative countries. As shown in Figure 2-8, the contribution of Sierra Leone's agricultural sector to its GDP is higher than the Sub Sahara African average, as well as that of the comparator countries, with the exception of one of her most direct neighbours, Liberia. This can be explained in one of two ways. First, given the similarity in the recent socio-political trends in the two countries, the majority of their

populations were employed in agricultural activities (specifically crops), that were not mechanised. The other explanation could be that the weak infrastructure conditions of these countries make it less conducive for economic activities in other sectors such as industry and services (Pushak and Foster, 2011).

Figure 2-8 Agriculture as Percent of GDP: Comparative Analysis



Source: World Development Indicators, 2012

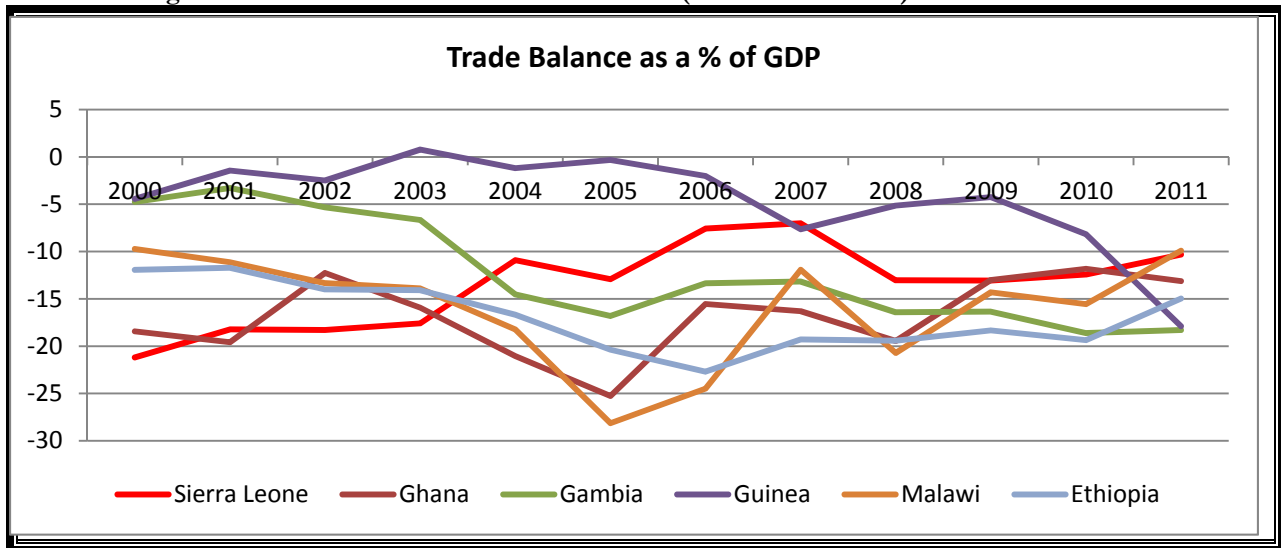
2.4 Export and Trade Performance

For the past 3 decades, Sierra Leone has traditionally recorded a trade deficit as a result of its reliance on imports, particularly food and fuel. The post conflict period has also experienced an increase in manufactured goods and machinery imports as a result of the rapid post – war infrastructural reconstruction and the reactivation of the mining sector. In more recent years, the country’s gradual reduction in the volume of food imports, particularly rice, has slowed the expansion of its trade deficit. In terms of export value, there has been a considerable surge since 2002. The increase in exports is explained mainly by government’s effort to curb illegal export of diamonds and instead use official means, re-opening of the bauxite and rutile mines, and the huge investment in iron ore mining (Ministry of Trade and Industry, Sierra Leone Trade Policy 2010). Although to a much lesser extent than mining, agriculture is also contributing to export earnings. Specifically, exports of cocoa and coffee, which were important agricultural exports prior to the conflict, have recovered (see Chapter 8 for more on Sierra Leone’s export composition and changing patterns). Cocoa bean exports grew from US\$20.54 million in 2009 to US\$37.05 million in 2010, an increase of 80.35 percent and in 2011; it increased by 18.8 percent to US\$44.02 million. The primary reason behind these increases is government’s increased support in the form of inputs to these farmers.

2.4.1 Trade Balance

The trade balance tells us how a country’s trade departs from the benchmark of equal imports and exports. Sierra Leone has typically recorded deficits in its external trade accounts. The persistent balance of payment deficits were perpetuated by heavy reliance on imports for most of the country’s essentials, including food, fuel, manufactured consumer items and machinery. Even though exports rose steadily between 2003 and 2008, recent FDI activities in the mining and agriculture sector led to a deterioration in the current account balance – from the increased importation of machinery and equipment for construction purposes Figure 2-9. This trend is expected to be reversed in the medium-term, as import of capital equipment declines and exports significantly increase.

Figure 2-9 Trade Balance as Percent of GDP (Selected Countries)

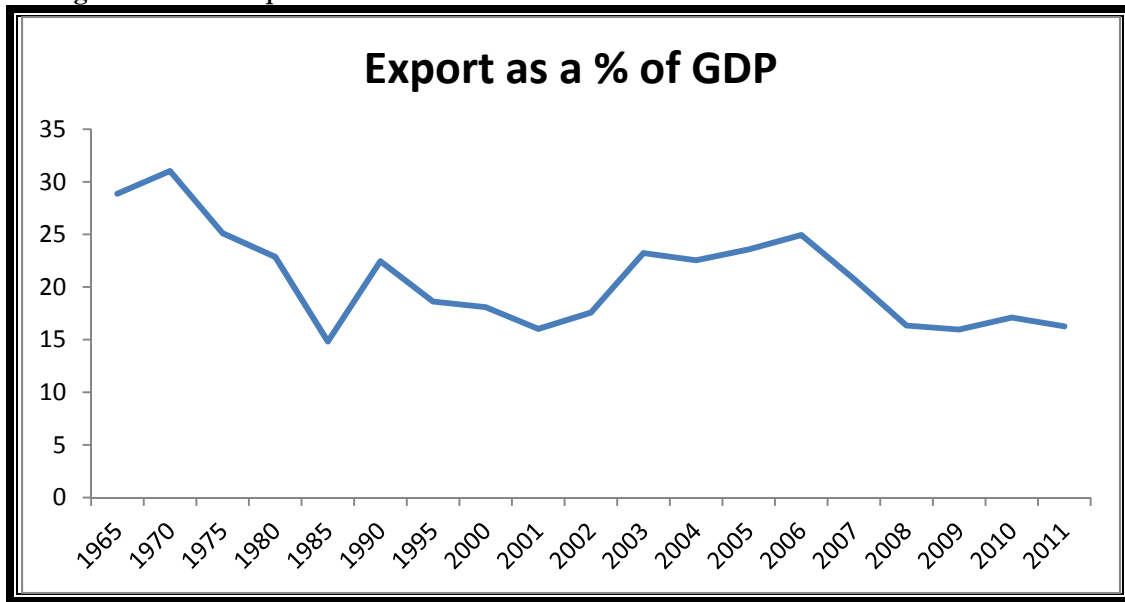


Source: World Development Indicators, 2012

2.4.2 Export Performance (2001-2011)

Sierra Leone’s export has primarily comprised of minerals including diamond and gold; and agricultural products like cocoa and coffee. The war period witnessed a decline in export earnings from US\$140 million in 1990 to US\$4.5 million in 1999 (SLIEPA, 2012). However, the end of the war has seen a surge in diamond and cocoa exports with the latter growing on average by about 80 percent for the period under review. Figure 2-10 shows exports as a percent of GDP over the years.

Figure 2-10 Exports as Percent of GDP

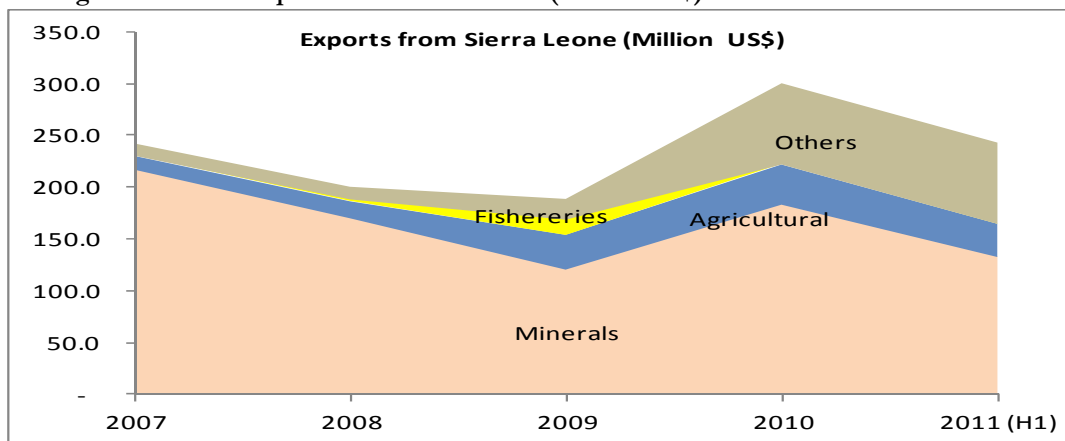


Source: World Development Indicators 2012

2.4.3 Composition of Exports

For the past two decades, Sierra Leone’s exports have been dominated by minerals. In more recent years, the agricultural sector, particularly cocoa, has increased its share of total exports. Revenue from fisheries increased after the end of the civil conflict. It is estimated that Sierra Leone loses about US\$29 million annually as a result of Illegal, Unreported and Unregulated (IUU) fishing activities (Ministry of Fisheries). Due to the EU’s direct export restrictions on Sierra Leone’s fisheries products to the EU markets because of its non – compliance with its own Fishery Products Health Regulation in 2007, the fisheries sector’s contribution to exports has been relatively insignificant. Figure 2-11 illustrates the contributions to GDP by various broad sectors.

Figure 2-11 Exports from Sierra Leone (Million US\$)

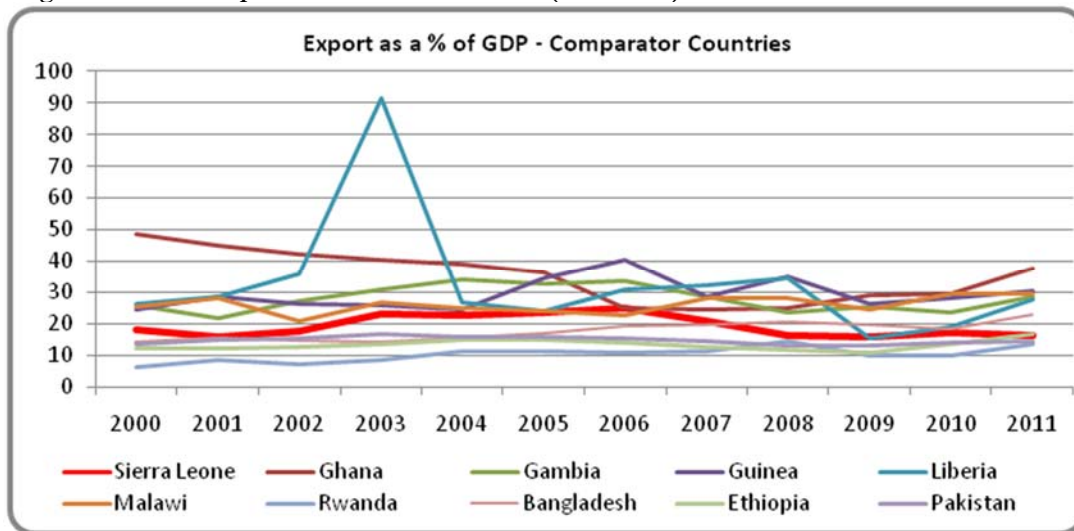


Source: SLIEPA 2012

2.4.4 Comparative Analysis

The performance of Sierra Leone’s export can best be understood when compared to other African countries and the Sub Saharan Africa (SSA) average. Taking export of goods and services as a percentage of GDP into consideration, Figure 2-12 shows Sierra Leone’s export performance has been below 20 percent for the period under review; Sierra Leone’s export has also been comparatively lower than the average for SSA. Taking the comparator countries into consideration, Sierra Leone, Rwanda, Ethiopia, Bangladesh and Pakistan were in the lower tier whereas countries like Malawi, Guinea, Gambia, Ghana, and Liberia recorded an encouraging export performance, hence in the upper tier for the period under review Figure 2-12. The key explanation for this poor export performance in Sierra Leone is the destruction of the agricultural and mining sectors which forms the backbone of our export basket as a result of the civil conflict. The mining operations came to a halt during the civil war leading to the collapse of the sector and the country gained a highly negative reputation for its illicit trade in “conflict diamonds”. The mining companies started operations around 2007 and agriculture started regaining its position in the country’s export basket. The country started realising the impact of the revamped mining companies two years later even though exports increased in absolute terms. Sierra Leone’s export performance is expected to increase in the medium term due to the production of iron ore and the discovery of oil deposits.

Figure 2-12 Export of Goods and Services (% of GDP)



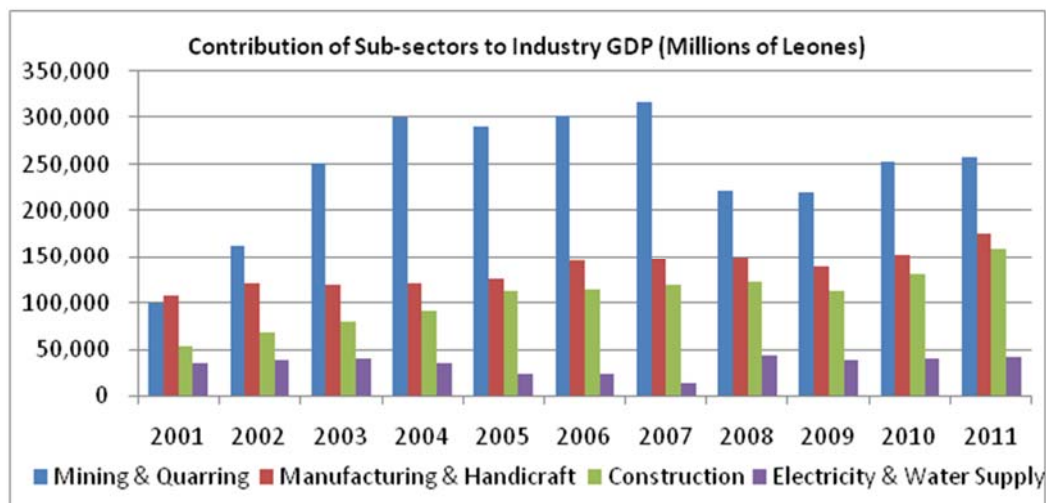
Source: World Development Indicators, 2012

2.5 Industrial Sector

The industrial sector comprises of mining and quarrying; manufacturing and handicrafts; electricity and water supply; and construction. During the period under review, 2001 – 2011, this sector has contributed an average of 8.7% to GDP and continues to contribute the least amongst the three sectors. To aid further understanding of the individual contribution of the sub-sectors

within the industrial sector, Figure 2-13 below presents the contribution of the various sub-sectors to industry GDP.

Figure 2-13 Contribution of Sub-sectors to Industry GDP



Source: Statistics Sierra Leone, 2012

From Figure 2-13, it is clear that mining and quarrying has been the largest contributor to industry GDP, contributing about 50 percent of industry GDP. However, during 2008 – 2011, the sub-sector’s contribution to industry GDP has declined as compared to previous years whereas the construction and manufacturing and handicraft sub-sector’s contribution has been increasing. The growth in the share of GDP is due to an expansion in construction, which experienced recovery in the post-conflict era. The construction of new houses, the increasing housing market and the construction of major roads in the capital and big towns form the key activities of the construction subsector. On the other hand, manufacturing has not done as well over the same period.

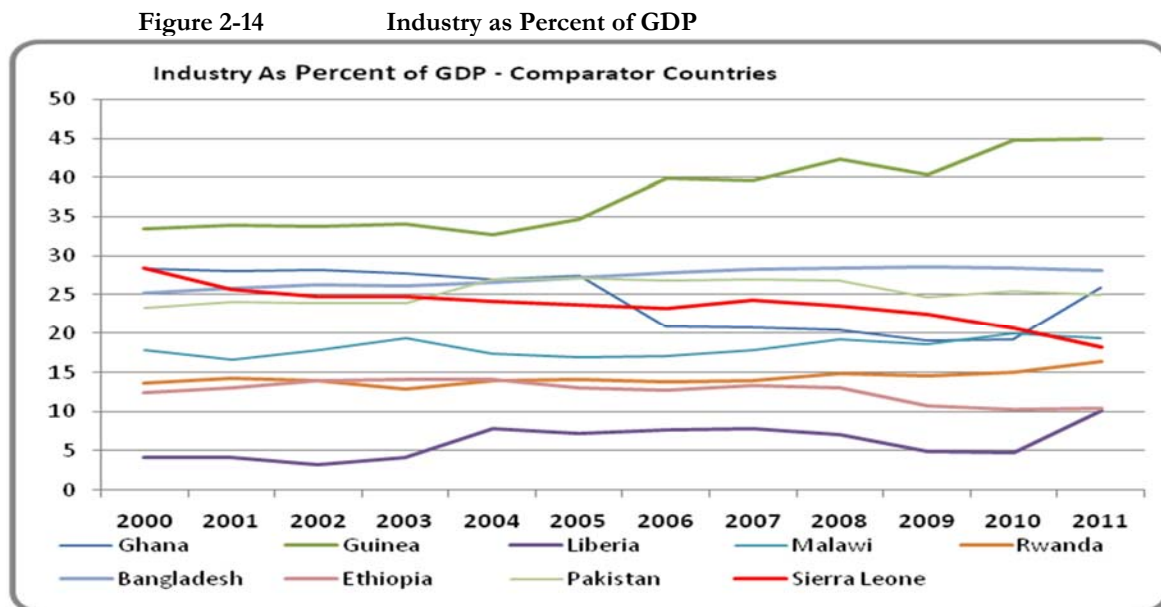
The mining sector contracted in the immediate post-conflict era. This is a natural consequence of the decade of conflict; mining operations came to a halt during the civil war leading to the virtual collapse of the sector and the country gained a highly negative reputation for its illicit trade in “conflict diamonds”.

The mining sector comprises three subsectors including artisanal mining of precious metals (principally surface level diamonds and gold), industrial mining of precious metals, and industrial mining of non-precious ores. In the early post-independence era, the mining sector provided 20 percent of GDP, 15 percent of fiscal revenue and more than 70 percent of foreign exchange, mostly from the export of diamonds (Ministry of Trade and Industry, 2012). Mining and quarrying were estimated in the 2007 Core Welfare Indicator Questionnaire (CWIQ) to account for 2.6 percent of employment, up from 1.1 percent in 2003. Prior to the conflict, the

artisanal mining sector provided an estimated 300,000 jobs as compared to about 115,000 jobs in 2010 and was an important source of livelihood for youths (*Statistics Sierra Leone 2012 and Revenue Watch Institute n.d.*).

2.5.1 Comparative Country Analysis

Figure 2-14 shows that the performance of Sierra Leone’s industry sector as a percent of GDP has been on a decline for the period under review. Sierra Leone has an average of 23 percent for the period under review. Sierra Leone was in the top tier during the first three years but later decline to the last tier between 2010 and 2011. However, the period 2000 – 2011 also saw an increase in quarrying activities as there was a surge in reconstruction activities. Post 2007 saw a steady decrease in industry as a percent of GDP.

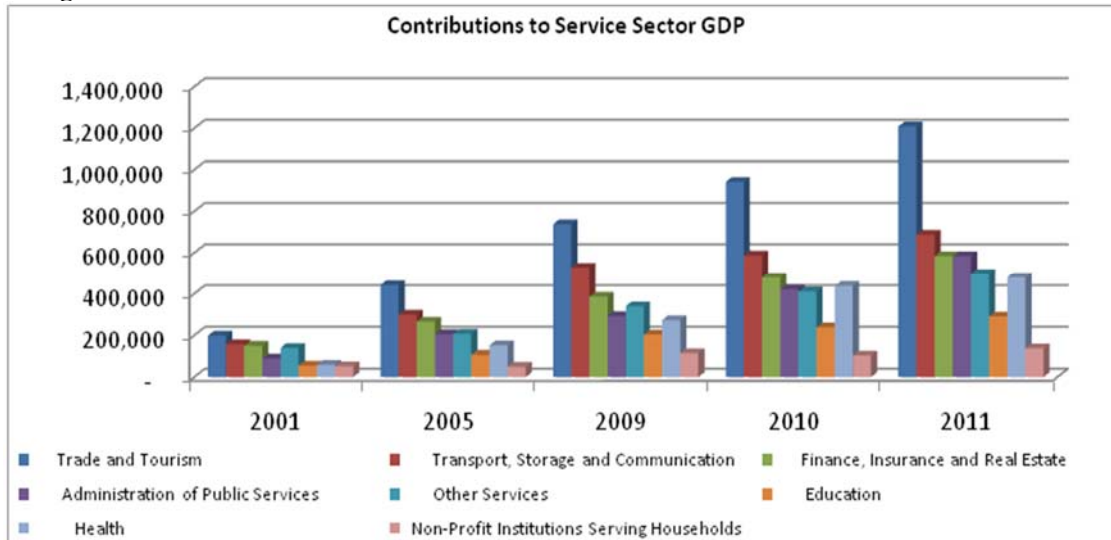


Source: World Development Indicators, 2012

2.6 Service Sector

The service sector continues to be the second most important contributor to GDP. This sector comprises of trade and tourism; transport, storage and communication; finance, insurance and real estate; administration of public services; health; education and Non- Profit Institutions Serving Household (NPISH). Figure 2-15 shows the contribution of each sector to service GDP.

Figure 2-15 Contributions to Service Sector GDP



Source: Statistics Sierra Leone, 2012

The total number of newly registered vehicles increased by about 11 percent; from 16,038 in 2009 to 17,795 in 2010. There was also an upsurge in the number of newly registered commercial vehicles. However, the number of newly registered tractors and trailers increased the most, by more than 200 percent in 2010 as a result of increased economic activities in the agricultural and transport sectors.

2.6.1 Tourism

In the tourism sector, the number of tourist arrivals in Sierra Leone for holiday, conferences, business and for visiting friends and relatives increased by 19.7 percent for the period 2010 - 2011 (National Tourist Board, 2012). The increased number of tourist arrivals reflects the gradual recovery in the global economy and the improved political and investment climate coupled with promotional activities undertaken by the national tourist board.

During the war, a lot of economic activities came to a halt and one such sector was tourism. However, post conflict economic recovery process have indicated that there are signs for this sector to become buoyant again (AfDB; 2011). However, jobs have begun rising from 14.4 percent in 2003 to 19.8 percent in 2007 but a good deal of that is thought to relate to the resumption of other trade sectors. A serious impediment to the growth of the tourism sector is the difficulty in accessing Freetown from Lungi International Airport or the tourism cluster developing along Lumley Beach (AfDB; 2011).

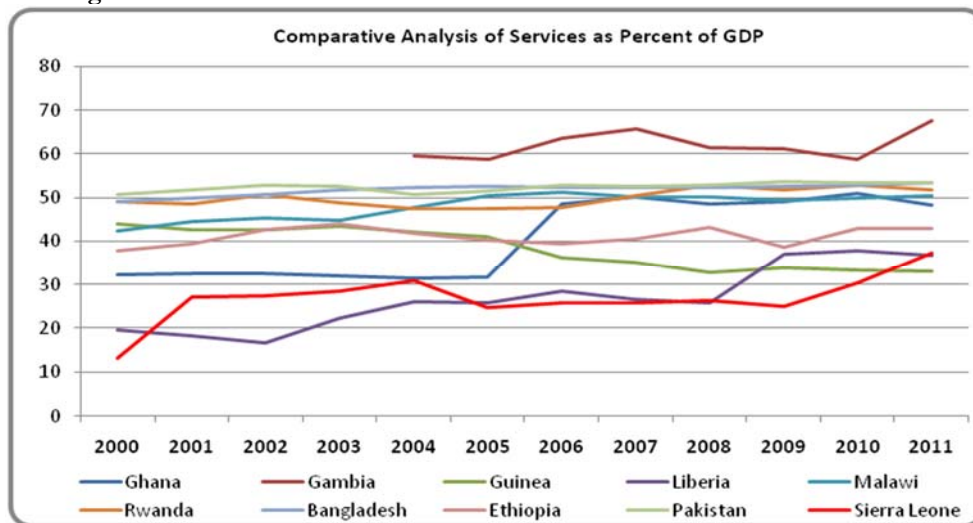
2.6.2 Finance, Insurance and Real Estate

The finance, insurance and real estate sectors have basically managed to keep pace with the general growth of the economy but contribute only 0.7 percent of employment and 4.7 percent of GDP. The financial sector is dominated by retail banking institutions, including some that are state-owned and slated for privatization, and is facing challenges to an economy with a growing demand. Financial institutions continue with an orientation towards asset-based lending, low-risk short term loans and are presently offering inadequate services for agriculture, medium and long term infrastructure investment, trade credit and export guarantees or cross-border payment services.

2.6.3 Comparative Analysis

Sierra Leone's performance in the service sector comparatively with other SSA countries has been on the bottom of the chart for the period under review. Sierra Leone's services sector performance as a percent of GDP was between 25 percent and 30 percent for most of the period under review, which is the least in comparison to other countries. For Sierra Leone, possible explanation for this situation is that the increase in agriculture and construction far outweighs the increase in the services sector.

Figure 2-16 Services as Percent of GDP



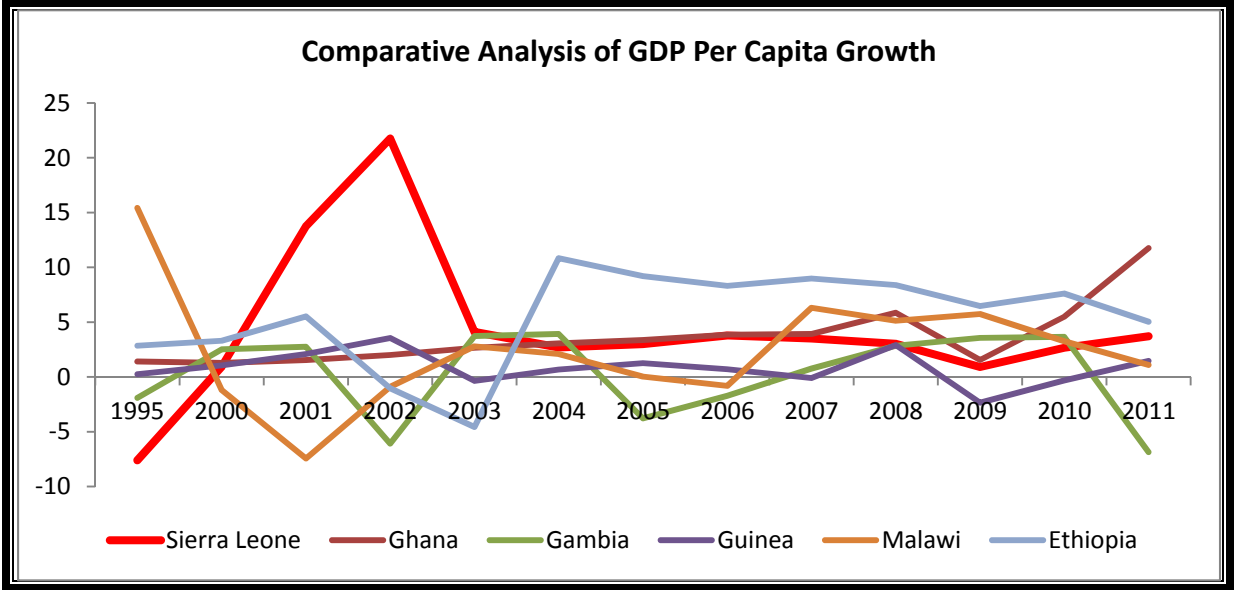
Source: World Development Indicators, 2012

2.7 Trends in Real GDP per Capita

Sierra Leone's growth performance in the last decade has been modest, yet sustained. Real GDP growth rates have averaged about 9.1 percent for the period 2001 - 2011; compared to SSA, which averaged about 5.2 percent. The growth rates in GDP per capita remained fairly constant

between 2004 and 2008 as shown in Figure 2-17; after which it fell sharply but remained positive and resumed an upward trend in 2010.

Figure 2-17 Per Capita GDP Growth Rate



Source: World Development Indicators, 2012

2.7.1 Conclusion

The structure of the economy has been skewed mostly towards agriculture and the mining and quarrying sub-sectors. Growth has been driven primarily by agriculture sector activities, which until more recently have been based on low-productivity methods and experienced comparatively lower yields. When compared to similar countries, the contribution of agriculture to GDP was significantly higher, while the contribution of other sectors was substantially lower. However, Sierra Leone’s growth in per capita terms has averaged 5 percent for the post conflict years. However, it is not significantly lower than countries in similar or comparable situations. The country has consistently experienced adverse terms of trade; but conditions are expected to improve going forward. The impact on the mining and minerals sector led to balance of payment problems and a depreciation of the domestic currency. Recent developments in the cocoa sub-sector and significant FDI in production of iron ore are expected to improve the merchandise account of the country’s balance of payments.

3 Constraints Analysis Methodology

As part of a compact development process, the MCC requires partner countries to complete a Constraints Analysis, which seeks to identify the binding constraints to economic growth. These constraints are the most severe root causes that deter households and firms from making investments of their financial resources, time, and effort that would significantly increase incomes. The analysis carried out in this work is based largely on the growth diagnostic approach propounded by Hausmann, Rodrik and Velasco (Hausmann et al., 2005), referred to here as the HRV method, which in recent years has been met by increasing acceptance in economic analysis and policy discussions. It is further informed by the Government's own assessment of what is constraining growth and development of Sierra Leone and which subsequently has fed into the national growth and development strategy (Government of Sierra Leone 2008).

3.1 Analytical Framework for Diagnostics

The HRV method differs from other analytical approaches by offering a framework that uses an evidence-based approach to prioritize the *binding* constraints to economic growth. In a typical low income country with daunting developmental challenges, it is not unusual to assume that all of these challenges are constraining growth. However, it would be unjustifiable to assume that all problems in the economy are equally constraining. Since governments and development partners have limited resources, it is prudent to ask which constraints, if alleviated, will produce the largest growth response. These are referred to as the *binding* constraints to growth. This study therefore sets out to identify those binding constraints, which are limiting private investment, and ultimately economic growth. The key to identifying a binding constraint is to find an underprovided public input in low supply and high demand. By increasing the supply of that input, the high demand can produce a significant growth dividend.

To help alleviate the laundry list approach to solving economic problems in many countries, Hausmann, Rodrik and Velasco (2005) propose a decision tree methodology to help discover one or two to four of the most binding constraints in economies and then converge on eradicating them.

3.1.1 The 'HRV' Model

The 'HRV' Model is embedded in the perception that there may be many reasons why a country may not experience economic growth, and all those reasons have their own unique types of fundamental causes compared to other countries. In Sierra Leone, the Constraints Analysis would be concerned with what is preventing the country from achieving broad-based economic growth. These are the issues that are at the heart of a growth diagnosis and once identified become the ones that must be addressed to promote economic growth and reduce widespread poverty.

The fundamental element of HRV analysis is that, in a balanced growth path, the rate at which an economy grows is a function of the difference between the expected return to asset accumulation and the costs of those assets as seen by the private agents that are accumulating those assets. In other words, firms will invest more when they expect their profits to be large (Hausmann, Wagner and Klinger 2008). This is expressed as follows:

Equation 3-1

$$g = \frac{\dot{C}}{C} = \frac{\dot{K}}{K} = \sigma[r(1 - \tau) - \rho]$$

Where:

g is the rate of growth of the economy,

C and K are the levels of consumption and capital per capita,

r is the expected social return to investment,

$(1-\tau)$ is the proportion of r that is privately appropriable, or retained by the investor

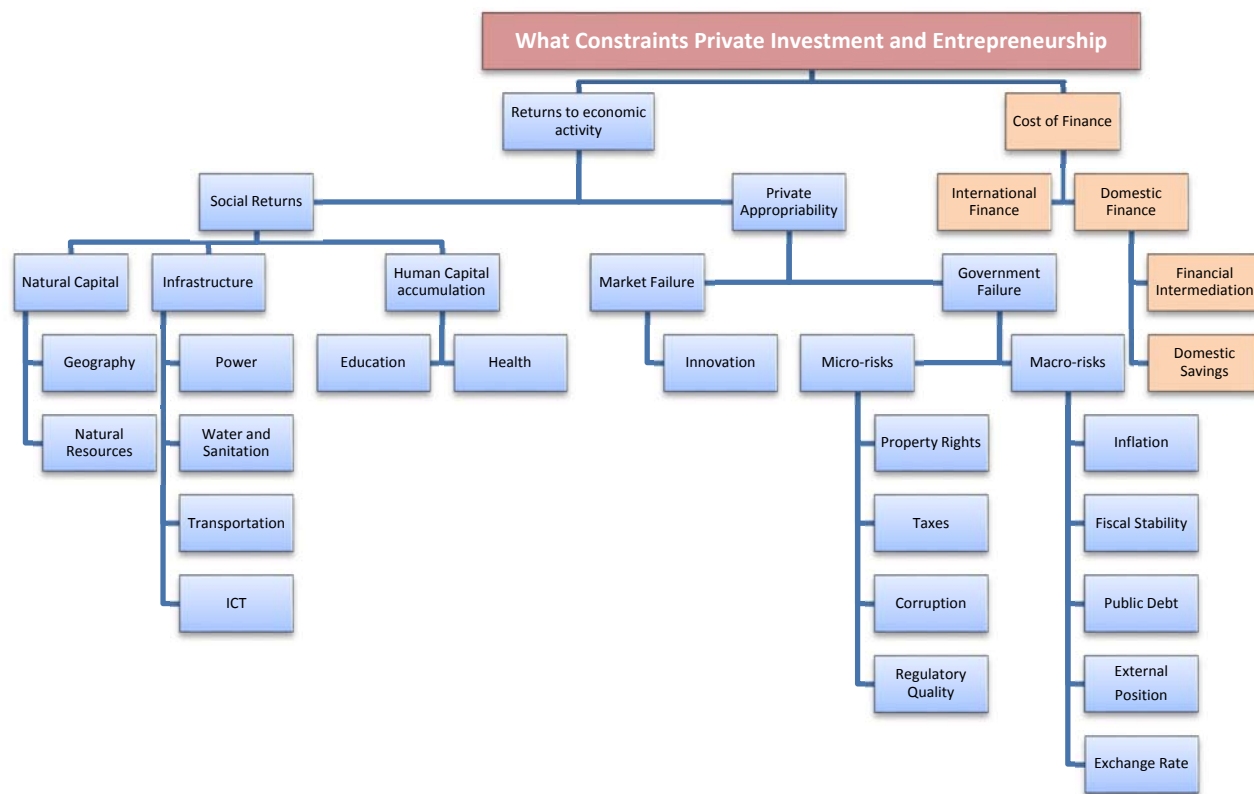
ρ is the opportunity cost of funds.

σ is the inter temporal elasticity in consumption

The dot on the variables denote changes over time. (Hausmann, Rodrik and Velasco 2005) further note that the returns to private investments is a function of three broad variables, namely total factor productivity within the economy, complementary factors of production (human capital and infrastructure, and some index on the degree of externalities within the economy. This relationship therefore forms the basis of the growth diagnostics.

In reality, there are many factors that affect the expected returns, appropriability and the opportunity cost of funds. To determine these, the HRV method uses a ‘diagnostic tree’ that decomposes each component to aid in identifying the root causes. The diagnostic tree used by HRV is presented in Figure 3-1.

Figure 3-1 Growth Diagnostics Tree



Source: Adapted from Hausmann, Rodrik and Velasco, 2005

3.1.2 Understanding the Diagnostic Tests

At each decision node of the tree, four tests are applied to distinguish between binding constraints to growth and non-binding constraints (Hausmann, et al, 2008). No single test is definitive, so it is suggested that the constraint is subjected to all the tests. It is then considered binding if it passes the ‘tests’ of a differential diagnosis. The argument here is that under a Bayesian framework, a strong posterior probability from the battery of test will suggest a constraint is binding. The test principles are illustrated as follows:

The (shadow) price of the constraint should be high.

The shadow price of the constraint is “the fundamental principle for identifying binding constraints to growth.” (Hausmann, Wagner and Klinger 2008). A low quantity of a particular input is not necessarily an indication of a binding constraint. If the shadow price is also low, it is likely that there is a low demand for that input, and it is not a binding constraint. In a situation

where the quantity is low and the shadow price is high, there is a supply shortage relative to demand. A point worth noting in the Hausmann, Wagner and Klinger (2008; p-31) report is that even though we do not observe shadow prices in practice, they are usually reflected in higher market prices and/or symptoms of high excess demand.

Movements in the constraint should produce significant movements in the objective function.

If we relax a “binding constraint” in an economy, we expect to see increased investment and private sector activity and, hence, economic growth. For example, if interest rates are reduced, one would expect firms to take advantage of the resultant inexpensive financing and make new investments. If interest rates fall and there are no new investments, we can conclude that financing was not constraining firms’ investment decisions.

Agents in the economy should be attempting to overcome or bypass the constraint.

When people confront a constraint in their daily lives, they will often come up with less efficient ways to achieve their goal and mitigate the effects of the constraint. For instance, if crime is a problem, a business may hire a private security guard to protect its property. This ‘circumvention’ measure invariably increases the operating costs of the business, thereby hindering its growth.

Agents less intensive in that constraint should be more likely to survive and thrive, and vice versa.

A given economic climate favours certain types of business, similar to the way natural climate favours certain organisms. Tropical flowers will not grow in Scandinavia, and polar bears will not survive in the Amazon. The basic principle, therefore, is that in an economy, businesses that use less of the binding constraint will thrive, while others will die or never form. For example, if the binding constraint is a limited supply of educated and highly skilled labour, it would be difficult to open a software design company in that environment. This would mean there will be little evidence of such companies in the economy.

An alternative way of understanding this test is that only companies that are big enough, or have a means, to overcome the constraint for their own use will exist even when the constraint is evident. For example, if weak road transport infrastructure prevents ‘regular’ businesses from operating in certain areas of the economy or regions of the country; a large foreign company with the financial strength can invest in private roads and other physical infrastructure required for them to operate if it is deemed economically viable.

Throughout this report, and where applicable, these tests are applied to firstly identify the constraints to growth; and ultimately to determine the most binding constraints therein.

3.2 Comparator Country Analysis

In addition to examining data on a country's specific performance, we also compare the evidence under the 4 tests with a comparator set of countries. Our choice of comparator countries was guided by factors such as the similarity of economic conditions (e.g. GDP Per Capita) and other non-economic factors such as location, population, land size and the degree of forest cover. We note here that the use of multiple variables means that we could not always get all the variables to be similar for all the countries. For instance, whilst Sierra Leone's per capita GDP is close to that of Rwanda in 2011, in terms of location, Rwanda is landlocked whilst Sierra Leone is not. We believe some of this diversity adds to the richness of the analysis.

The use of comparator analysis generally helps us to gauge the extent to which factors constrain private sector investments relative to countries that are somewhat similar to Sierra Leone. The set of countries that are mainly used in this report and their characteristics are shown in Table 3-1. We note from the set of comparator countries that generally the real per capital GDP range from about US\$242 for Ethiopia to US\$783 for Pakistan. Among this set of countries, Sierra Leone's population is smaller than all except Gambia and Liberia.

Table 3-1 Main Comparator Countries used in Analysis

Country Name	GDP per capita, PPP (2000 US\$)			Land area (sq. km)	Forest area (% land area)	Population (Total) million		Geography
	1970	1980	2011	2011	2011	1970	2011	
<i>Bangladesh</i>	280	244	569	130,170	11.1	66.3	152.9	Not Landlocked
<i>Ethiopia</i>			242	1,000,000	12.2	28.4	89.4	Landlocked
<i>Gambia, The</i>	378	452	433	10,120	47.6	0.4	1.7	Not Landlocked
<i>Ghana</i>	500	412	686	227,540	21.2	8.6	24.8	Not Landlocked
<i>Liberia</i>	703	632	258	96,320	44.6	1.4	4.1	Not Landlocked
<i>Malawi</i>	174	230	262	94,280	34.0	4.5	15.5	Landlocked
<i>Pakistan</i>	339	397	783	770,880	2.1	59.2	176.2	Not Landlocked
<i>Rwanda</i>	220	271	371	24,670	18.0	3.8	11.1	Landlocked
<i>Sierra Leone</i>	426	426	385	71,620	37.8	2.5	5.9	Not Landlocked
<i>Guinea</i>				245,720	26.6	4.2	10.2	Not Landlocked

3.3 Data Sources

The analysis herein are based primarily on secondary data collected from various international data sources such as the World Bank, the African Development Bank; the International Monetary Fund; as well as from domestic official sources including but not limited to Government Ministries; the National Revenue Authority; the Bank of Sierra Leone; Statistics Sierra Leone; the Sierra Leone Water Company; the National Roads Authority and the National Power Authority. Household-level data was obtained from the 2011 Sierra Leone Integrated Household Survey, and enterprise-level data was obtained from the World Bank's 2009 Enterprise Survey.

The analysis was also informed by data collected from a previous diagnostic study on Sierra Leone, which examined issues of economic diversification; the National Conference on Development and Transformation (NCDT) and various drafts of the 3rd generation national Growth and Poverty Reduction Strategy, also known as the Agenda for Prosperity (A4P).

It is noteworthy that the NCDT and the A4P are national growth and development strategy documents that were developed based on an extensive process of national consultations with various stakeholders. The four priority areas identified under the Agenda for Prosperity include, *improving the supply and reliability of power, raising the productivity in agriculture and fishing, improving the transport network, and improving human capital* (Government of Sierra Leone 2008).

3.4 Limitations to Study Methodology

The HRV Diagnostic tool was developed by (Hausmann, Rodrik and Velasco 2005), to help identify the most critical constraint to economic growth in a specific country at a particular point in time. The methodology is heavily data reliant. Ultimately, the quality of the analysis conducted on any economy depends on the volume and quality of existing data on the different nodes of the diagnostic tree.

When conducting a constraint analysis in an underdeveloped country such as Sierra Leone, limited or unreliable in-country data often forces analysts to rely on data from international research and development organisations. Although data from these sources is typically acceptable quality, its major limitation is that it does not provide significant insight into country level dynamics or even allow for disaggregation or decomposition of the data along fine analytical parameters. To mitigate this concern, this constraints analysis for Sierra Leone used data from domestic sources and the 2011 Integrated Household Survey whenever possible, although international data sources were used extensively as well.

Another difficulty facing analysts is that a significant portion of the domestic private sector lies in the informal sector. Typical enterprise surveys often sample only from the formal sector, so informal enterprises are underrepresented in the data. Using the household survey data mitigates this somewhat by allowing an examination of household micro enterprises, but a data gap often persists in the informal sector. Additionally, national and sub-national level data that could enable analysis on issues that affect or pertain to this sub-sector of the economy are not available in readily accessible formats. Where reliable quantitative data does not exist, qualitative and anecdotal evidence can be brought to bear on the analysis, although it is used sparingly.

Therefore, even though the strength of any constraints analysis, particularly as it relates to conducting the four tests of the diagnosis, may be weakened due to the paucity of data available, one can use many sources to ensure that the true and complete picture is presented. Indeed the

analysis may, in some areas, be exposed to the risk of using data that is applicable only to a small and unrepresentative sub-set (e.g. the formal private sector⁵) to analyse and draw conclusions on the entire set.

This is particularly important because the ultimate goal of the Constraints Analysis is to find ways of stimulating ‘broad-based’ growth. Analyses and conclusions that risk disregarding issues affecting the large majority of the domestic private sector potentially minimises the overall impact of programmes developed from such conclusions. However it is the view of the authors that this is a not major drawback for this study. We discuss some of the broad mitigating measures that are taken to reduce any systemic biases from data quality.

3.5 Mitigating Measures

When weighing the evidence in a constraints analysis, analysts need to recognize these risks and view the evidence through a Bayesian framework. With each piece of new evidence, the analyst should consider its quality and relevance and estimate the probability that it is pointing toward a binding constraint. This piece of evidence is then compared against other evidence, and the analyst updates his or her hypothesis. As stated by, Hausmann, Wagner and Klinger (2008), “The result of a battery of tests will be stronger a posterior probability that a particular constraint, or set of constraints, is binding, thus incorporating the richest set of information available” (p. 31). By taking these precautions, we increase the likelihood that we are identifying the true barriers constraining broad-based economic growth.

The analyses carried out herein are largely consistent with the principles of the HRV growth diagnostic methodology. In cases where limited secondary data were available, the CA analytical team utilised expert knowledge to complement the information without necessarily departing from the core principles. The team also sought ‘counter-factual’ information to test theories where it seemed limited available data was pointing in a particular direction.

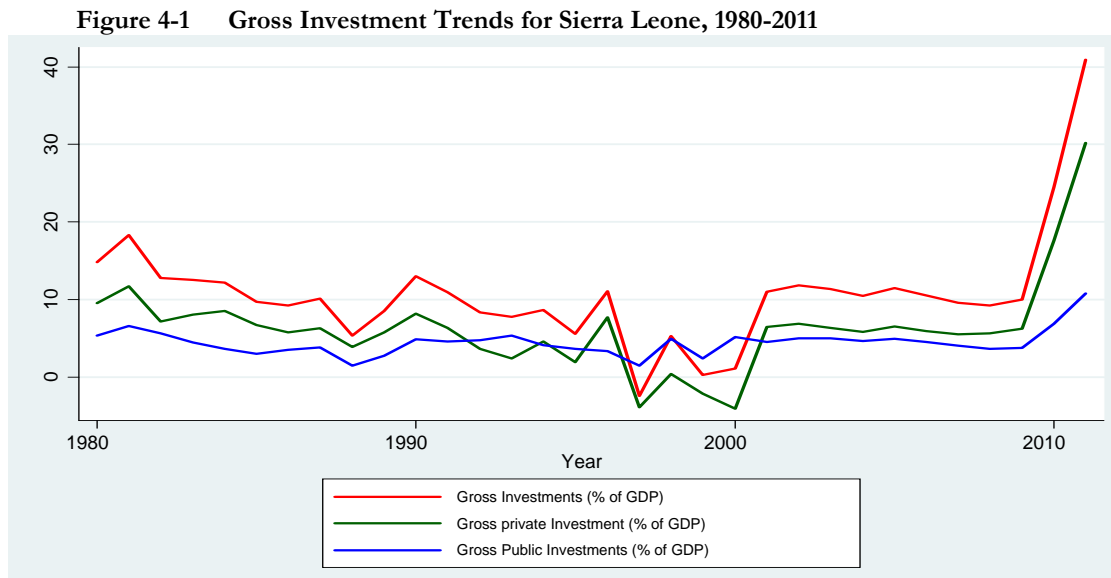
To validate the results of the constraints analysis, the report underwent technical peer review by economists who are not on the team, plus the team engaged in nationwide consultations. This allowed stakeholders to provide their input and confirm or contradict the findings of the constraints analysis.

⁵As previously noted, this sub-sector is heavily dominated by large foreign firms, who at the time of making investments, find a means of insulating themselves against some of the inherent constraints in the economy

4 Is Private Investment Too Low in Sierra Leone?

4.1 Are Private Investments too Low in Sierra Leone?

The following summary analysis on the question of private investments in Sierra Leone is based on the premise that rapid and sustained economic growth depends on the achievement of substantial levels of private investment in any economy, including Sierra Leone. Figure 4-1 depicts gross investments in Sierra Leone over a 30-year period. It shows that from pre-war years (1985-1990) through to nearly a decade after the end of the civil conflict (2001-2009), overall rates of investments remained consistently less than 10 percent of GDP, including a low and fluctuating share of private investments. The economy maintained this trend until around 2010, when private investments, largely driven by Foreign Direct Investments (FDI), increased sharply due to natural resource discoveries and the introduction of government reforms and policies that encouraged foreign investments in the agribusiness and infrastructure sectors.

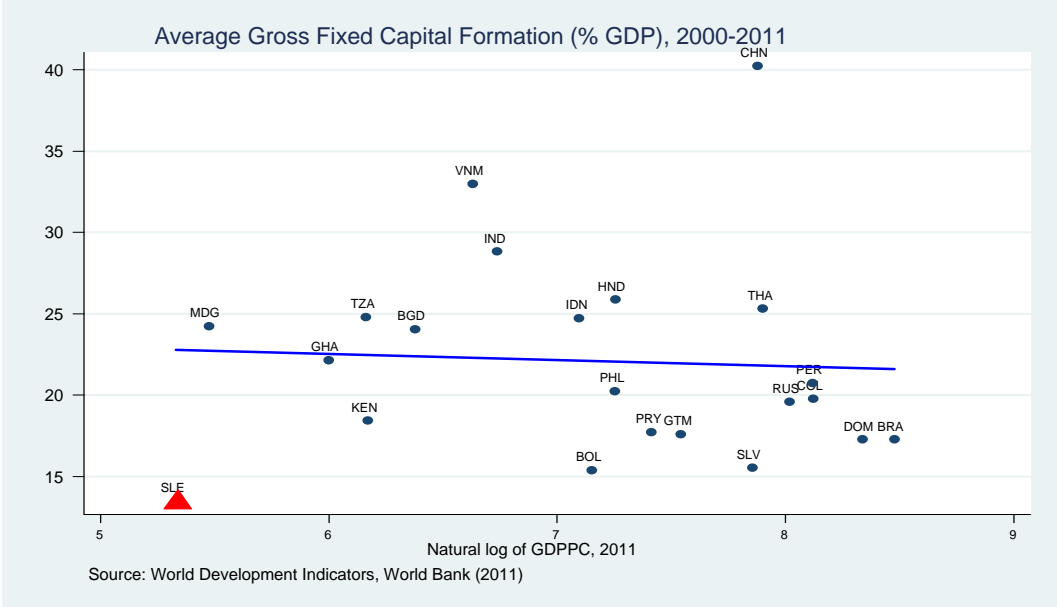


Source: World Development Indicators, 2012

Gross fixed capital formation typically provides a picture of investment and growth of the "real economy" in which goods and services are produced using tangible capital assets. A panel analysis of developing countries, which plotted average gross fixed capital formation (as a percentage of GDP) over the period 2000 to 2011, shows that Sierra Leone performed extremely low compared to other Low Income Countries (LICs). Figure 4-2 shows Sierra Leone's fixed capital formation averaging around 11 percent of GDP, compared to a median of about 25 percent; an average of 22 percent for Ghana, and 24 percent for Bangladesh. These relatively low levels of gross fixed capital formation could be partly explained by the relatively low absolute levels of gross investments; and also due to the fact that the Sierra Leone economy is not an industrial one. Recent investments in the mining and large scale mechanised agribusiness sectors

in 2010 and 2011 have increased fixed capital formation levels; however, these were not significant enough to affect the 11-year average.

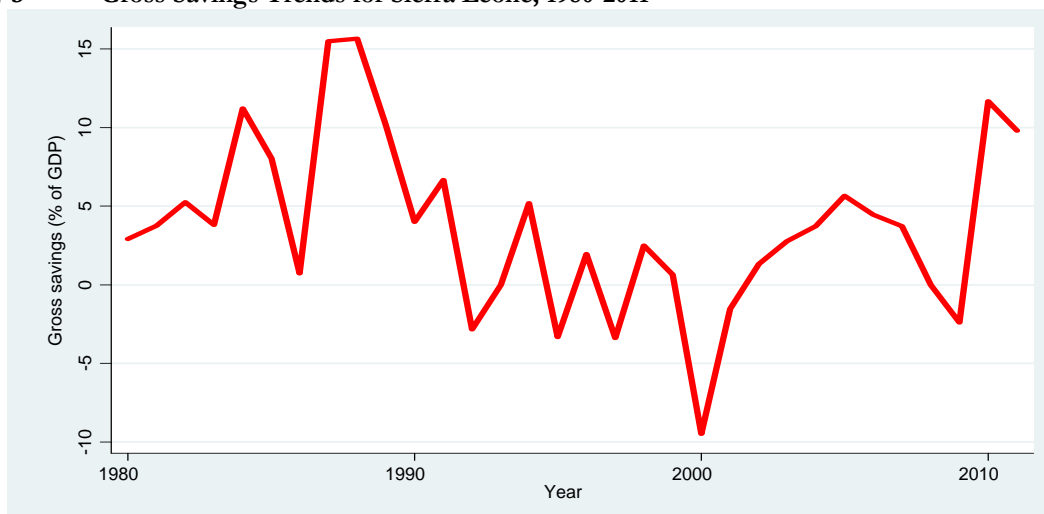
Figure 4-2 Average Gross Fixed Capital Formation, 2000-2011



Source: World Development Indicators, 2012

Another perspective for the evidently low levels of private investments in the economy is the level of Gross Savings. A number of growth models postulate the causal relationship between savings rates and investments, and ultimately growth. Such models generally conclude that a low savings rate could translate into low levels of investment and growth; thereby perpetuating poverty levels (Aghion, et al. 2009). Gross Domestic Savings is a measure of an economy’s ability to mobilise finance for investments. Compared to other countries Sierra Leone’s savings rate has been very low averaging about 2.4 percent annually over the period 2000-2011. This is very low when compared to any of the comparators, such as Ghana (16%) and Bangladesh (32%). Figure 4-3 shows trends in gross savings rates in Sierra Leone for the period 1980 to 2011.

Figure 4-3 Gross Savings Trends for Sierra Leone, 1980-2011



Source: World Development Indicators, World Bank (2013)

Gross savings have fluctuated over the period, reaching a high of around 15 percent of GDP in the period just before the war in 1987. It dropped steadily thereafter, until the beginning of the civil war in 1991 when it plummeted to negative levels, reaching its lowest levels in 2000. Since the end of the war in 2001, gross savings rates have steadily increased, reaching 11 percent in 2010.

4.2 Summary Analysis

The foregoing facts and figures strongly suggest that private investments in Sierra Leone have been consistently low for the past 3 decades. In investigating other potential binding constraints to private investments in Sierra Leone, it is important to highlight some structural characteristics of the Sierra Leone private sector. These include, but are not necessarily limited to the following:

Significantly large informal sector. The private sector in Sierra Leone is dominated by a relatively large (in absolute number terms) informal sector, of which micro and small scale enterprises form a major component.

A small industrial sector. A small number of firms engage in manufacturing and other high value added economic activity. This has serious implications both for competitiveness and diversification of the economy.

Foreign Dominance of Formal Private Sector. The relatively small formal sector is also heavily dominated by foreign firms⁶. This applies to almost all sectors including banking, manufacturing,

⁶Foreign ownership herein defined as 51% equity ownership of non-citizens and significant levels of management control

ICT services, mining and agribusiness. In some cases, these companies do not necessarily rely on domestic inputs in the form of finance, human capital or even operating infrastructure. This has strong negative implications for financial repatriation.

Slow pace of economic transformation. Sierra Leone's economy has, for many years, been largely based on subsistence agriculture and mineral exports. Mechanisation levels in agricultural production and value added industrial processing of agricultural products has been almost non-existent. For many decades, export earnings have been largely driven by export of rough diamonds. While there have been recent efforts at economic transformation, the effects of several decades of being a traditional and natural resource based economy still loom strong.

Attempts to stimulate private investments for broad-based growth, should take into account the foregoing structural issues.

5 Finance as a Potential Constraint to Growth

5.1 Introduction

The cost of finance either through inadequate access to domestic and foreign capital or poor financial intermediation can be a binding constraint to private sector investment and consequently growth if it is high. This high cost of finance can subsequently serve as a deterrent to potential investors from undertaking otherwise high return investments.

The financial sector in Sierra Leone is highly underdeveloped with many associated structural problems. This chapter therefore presents the situation of the financial sector in Sierra Leone and provides an assessment of whether the cost of finance is a binding constraint to private sector investment.

5.2 The Financial and Banking Sector

5.2.1 Evolution and Growth of the Sector

The protracted civil war in Sierra Leone disrupted economic activity in many sectors including the financial sector. It has been argued that there was widespread damage to banks' branch networks and infrastructure (Decker 2012). The Sierra Leone Central Bank Act of 2000 was promulgated to strengthen the financial system in Sierra Leone and make it more efficient. The Act also brought legislation governing the Central bank in line with other central bank legislation in West Africa. A year later, the Other Financial Institutions Act of 2001 came into being and widened the supervisory remit of the Bank of Sierra Leone to include all other institutions that engaged in financial activity (Decker, 2012).

The post war period has seen growth in the financial system and an influx of foreign banks. The number of banks increased from 7 in 2002 to 13 in 2009. The number of branches increased even more, from less than 20 in 2002 to 54 in 2008 and to 89 in 2012. However, Freetown has over 50 percent of the bank branches, suggesting a concentration of banks in the capital. As at the end of 2010, the 13 banks in Sierra Leone had mixed ownership, with 10 of the banks being foreign owned. Of the 3 local banks, the government has 100 percent ownership of the Sierra Leone Commercial Bank and majority ownership (51%) of Rokel Commercial Bank. Union Trust Bank is the only privately owned bank with majority indigenous shareholding.

Table 5-1 Trends in Commercial Bank Branches in Sierra Leone, 2008 – 2012

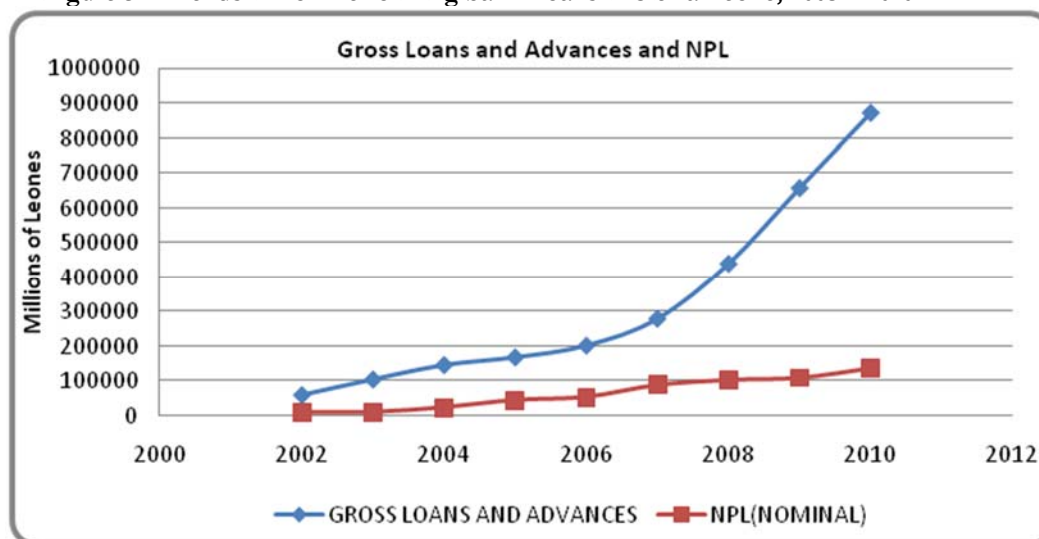
<i>Bank</i>	Number of Branches				
	2008	2009	2010	2011	2012
<i>Rokel Commercial Bank</i>	11	11	11	12	12
<i>Sierra Leone Commercial Bank</i>	9	11	12	13	13
<i>Standard Chartered Bank</i>	3	3	3	3	3
<i>Union Trust Bank</i>	7	7	8	9	10
<i>Guaranty Trust Bank</i>	4	7	7	10	11
<i>First International Bank</i>	7	14	18	16	16
<i>International Commercial Bank</i>	2	2	2	2	2
<i>Ecobank</i>	6	7	7	7	7
<i>Access Bank</i>	2	3	4	4	4
<i>United Bank for Africa</i>	1	3	3	3	3
<i>Skye Bank</i>	1	1	1	1	1
<i>Zenith Bank</i>	1	1	3	4	4
<i>Bank PHB</i>		1	1	2	3
<i>Total number of Banks</i>	12	13	13	13	13
<i>HHI</i>					
Total number of Bank Branches	54	71	80	86	89

Source: Bank of Sierra Leone

5.2.2 The Soundness and Volume of Lending of the Financial and Banking Sector

Banks in Sierra Leone have a small asset base and operate at a low efficiency level. For instance, banks have assets averaging about US\$45 million and their on-interest expenses average about 10.1 percent of total assets (Johnson 2011). The concentration ratio in the banking sector is high in spite of recent improvements. The Stock Exchange which was established in 2009 will still take some time to generate a significant number of listings and be able to undertake secondary market trading of securities (see Johnson, 2011). The capital-asset ratio of the banks is good (at about 17%), but non-performing loans remain a problem, with current rates around 16 percent (Figure 5-1).

Figure 5-1 Trends in non-Performing bank Loans in Sierra Leone, 2003 – 2010



Source: Bank of Sierra Leone

As can be seen from Figure 5-1, non-performing bank loans increased at almost the same rate as gross loans and advances of the banking system through 2007. This shows that as the banking system increases its loans and advances, the rate of default on this facility also increases, although that pattern changed after 2007, when loans and advances grew faster than non-performing loans.

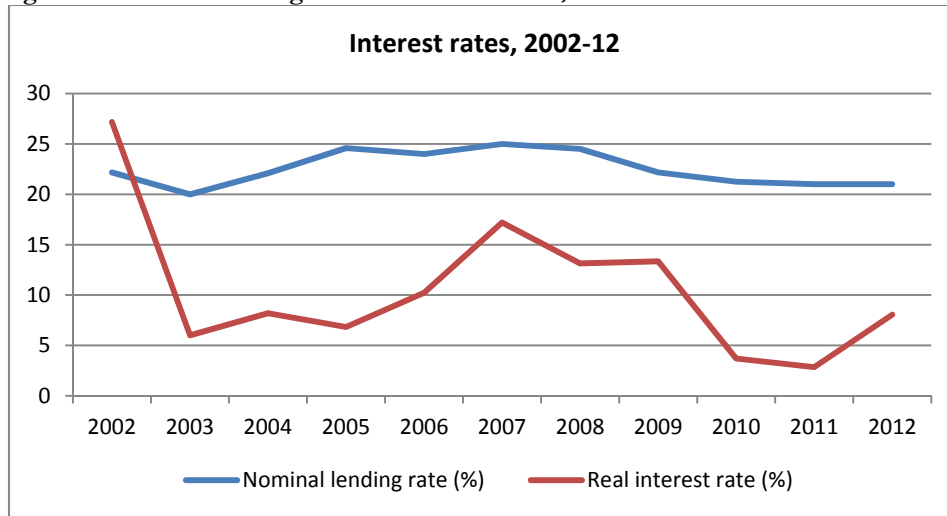
The payment system remains under developed, with a limited interoperable ATM system. Credit card use is limited in domestic payment transactions, and there is insignificant use of cheques or internet banking (Johnson 2011). A credit rating agency has been established, but it is still in its early days and has had limited (if any) effect on financial sector development. The financial system is fairly liberalised with interest rates and exchange rates being market-determined. The banking system is not government-dominated despite the fact that the largest commercial bank is state owned, with the financial landscape changing quickly in favour of the private banks. For instance we note from Table 5-1 that from about 2010, First International Bank (a private bank) have had the largest number of bank branches in Sierra Leone.

Government developed the Financial Sector Development Plan in 2009, which emphasized the need to develop a competitive and efficient financial sector to promote private sector development, accelerate economic growth and reduce poverty.

5.2.3 The Credit Market in Sierra Leone

Nominal interest rates in Sierra Leone have generally been over 20 percent since 2002. However, with inflation averaging around 11 percent over the same period, real interest rates have fluctuated between 5 and 15 percent. In the past few years, real interest rates have been below 10 percent.

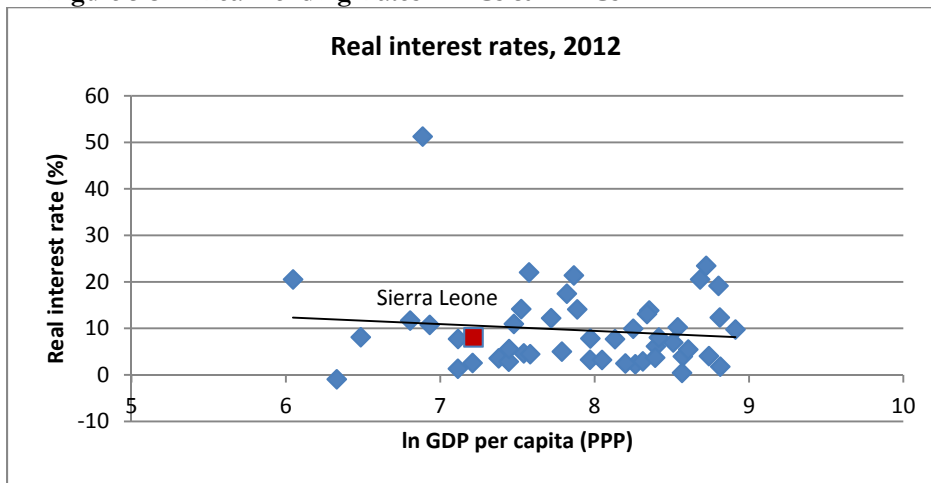
Figure 5-2 Real Lending Rates for Sierra Leone, 2002- 2012



Source: World Development Indicators, 2012

Compared to other lower income countries (LICs) and lower middle income countries (LMICs), these real interest rates are slightly low.

Figure 5-3 Real Lending Rates – LICs & LMICs

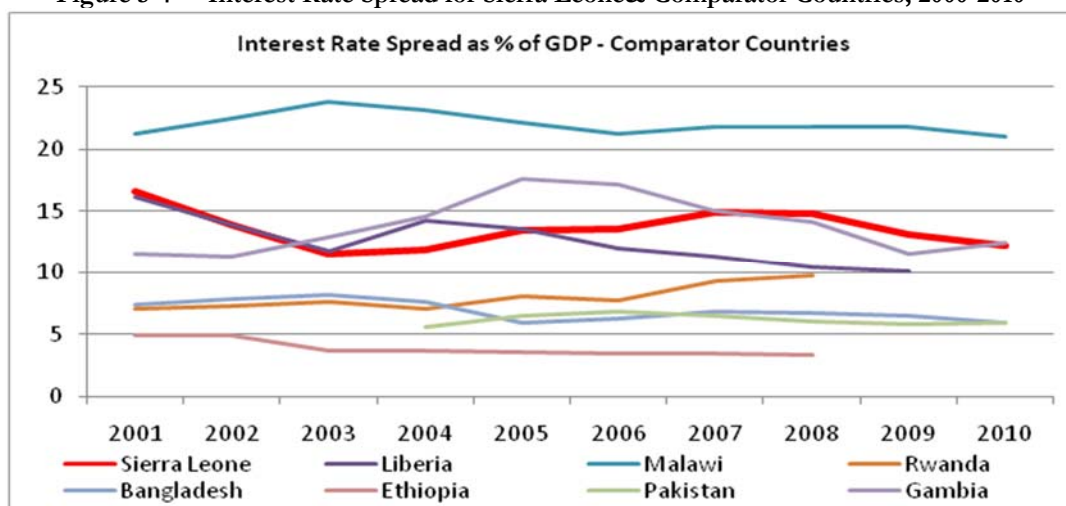


Source: World Development Indicators, 2012

As can be seen from Figure 5-4, the interest rate spread for Sierra Leone is high but comparable to that of its peers. This spread between the lending and deposit rates, should in theory be a reflection of the demand and supply situations in the credit market. Of course market imperfections and interference could also influence the spread. Interest rate spread is a measure of the costs of financial intermediation in an economy. It therefore reflects the risks associated with taking depositors' money (suppliers of credit) and lending it to borrowers (demand for credit). Some of the factors that have been found to influence the spread include the cost of

operations (in essence the efficiency of the banking system), inflation and the degree of competition or concentration in the banking system (Boldbaatar 2006).

Figure 5-4 Interest Rate Spread for Sierra Leone & Comparator Countries, 2000-2010



Source: World Development Indicators, 2012

However the levels which pertain here – with an annual average of about 14 percent for Sierra Leone over the period, suggests that excess demand for credit does exist in Sierra Leone. A range of barriers will typically prevent people from accessing the services in the formal financial sector. Interest rates in the formal financial sector are only indicative of the price for those able to access bank loans (Ellis, Lemma and Rud 2010). Even though the large spread could be indicative of excess demand, many economic agents in Sierra Leone are not accessing bank credit. For instance, the 2009 enterprise survey data shows that only 6.9 percent of firms used banks to finance their investment (World Bank 2009). Relative to comparator countries, the proportion of firms for Sierra Leone ranks lowest, except for Guinea.

5.2.4 Access to Credit

Data from the World Bank enterprise survey (2009) show that about 32 percent of all firms find credit to be a major obstacle for their operations as shown in Table 5-2. Another 5.2 percent cite credit as a very severe obstacle while about 25 percent cite it as a moderate obstacle. Since only about 9 percent do not cite credit as an obstacle, it can be deduced that 91 percent of firms surveyed in Sierra Leone mention that access to credit is an obstacle for their operations to varying degrees.

Table 5-2 Perception of Access to Credit as a Constraint, by Size of Firm (2009)

	Small (5-19)	Medium (20-99)	Large (100+)	All	Actual No of firms
No Obstacle	5.71	14.71	27.27	9.33	14
Minor Obstacle	27.62	29.41	36.36	28.67	43
Moderate Obstacle	26.67	23.53	9.09	24.67	37
Major Obstacle	34.29	29.41	18.18	32	48
Very Severe Obstacle	5.71	2.94	9.09	5.33	8
Total	100	100	100	100	
Actual No Of Firms	105	34	11	150	

Source: World Bank Enterprise Survey Data (2009)

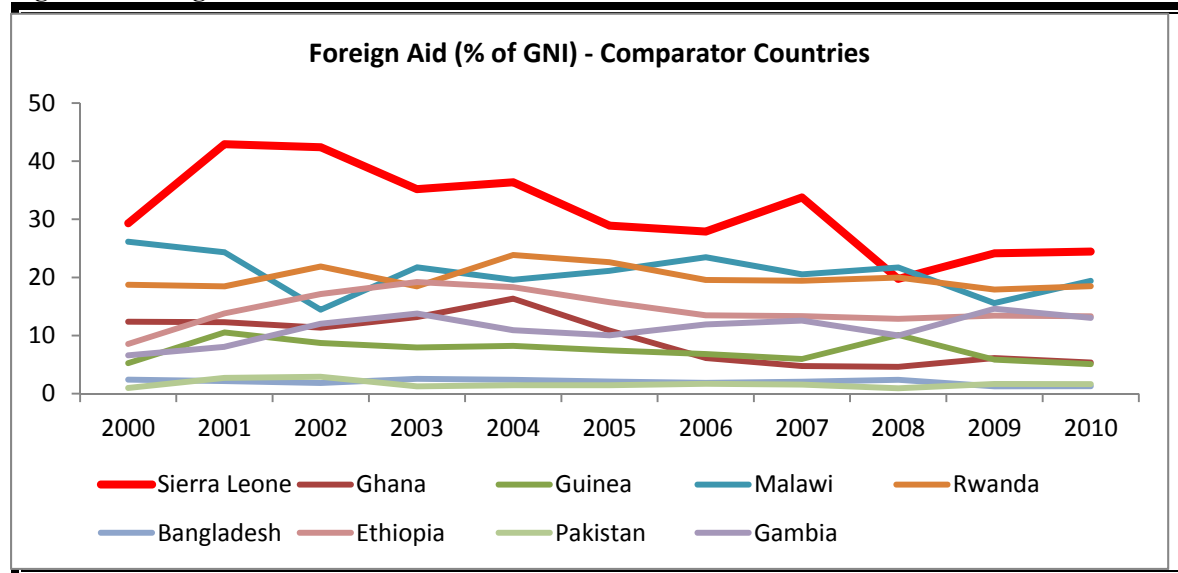
Notes: The Classification of firm size is by the number of employees. Except for the last column and last row, the numbers in the table are the percentage of firms (by size) that choose a particular response. The last column and row show respectively the actual number of firms in the row or column category respectively.

The World Bank Doing Business report for 2013 also show that although Sierra Leone has made considerable strides on the credit front, it still has some way to go. Sierra Leone, with a rank of 83 on the getting credit indicator in the Doing Business 2013 report, fared much better than countries such as Liberia and Guinea-Bissau (World Bank 2013). However, others such as Ghana, which ranked 23, were ahead of Sierra Leone. These results are in themselves not enough to suggest that credit is a binding constraint in Sierra Leone. We therefore proceed down the decision tree and interrogate the evidence with respect to both international finance and local finance.

5.2.5 International Finance

International finance in Sierra Leone consists of several types, including foreign aid, remittances and foreign direct investment. Official flows to Sierra Leone, which decreased in the 1990s, have recovered in the last 10 years. We note from that foreign aid to Sierra Leone, which was about 30 percent of GNI in 2000, has generally decreased over the years to less than 15 percent in 2011. However, this general decrease is also true for the comparator countries, so that the ratio for Sierra Leone has been consistently about the highest among the comparators.

Figure 5-5 Foreign Aid as a Percent of GNI

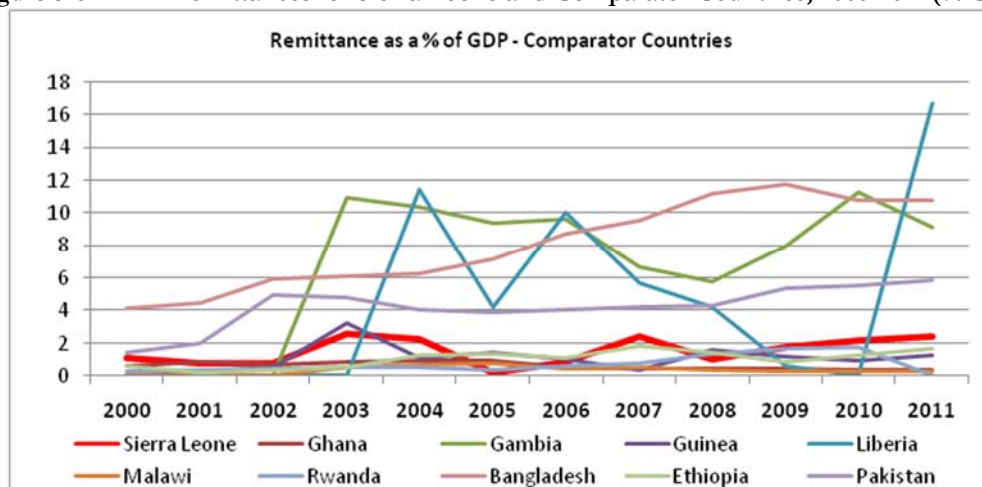


Source: World Development Indicators, 2012

Inflows of international private capital to Sierra Leone have also seen substantial increases, particularly over the last 4 years. Foreign direct investment (FDI) as a percent of GDP, which was near zero around 2000, reached almost 25 percent of GDP in 2011 thanks to the opening of a new iron ore mine. Indeed the ratio of FDI flows to Sierra Leone has been comparable to or exceeded its peers as seen in Figure 5-5.

Despite a significant diaspora population, remittances have remained fairly low in Sierra Leone, especially in comparison to FDI flows.

Figure 5-6 Remittances for Sierra Leone and Comparator Countries, 2000-2011 (% GDP)



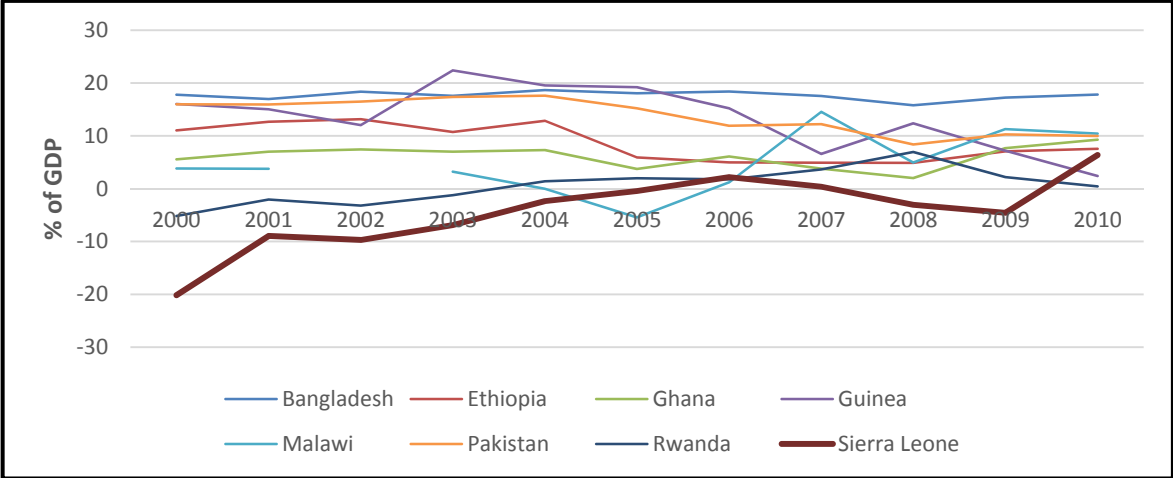
Source: World Development Indicators, 2012

Based on the relatively high levels of foreign aid and the high and increasing levels of FDI, international finance does not appear to be constraining growth in Sierra Leone.

5.2.6 Local Finance

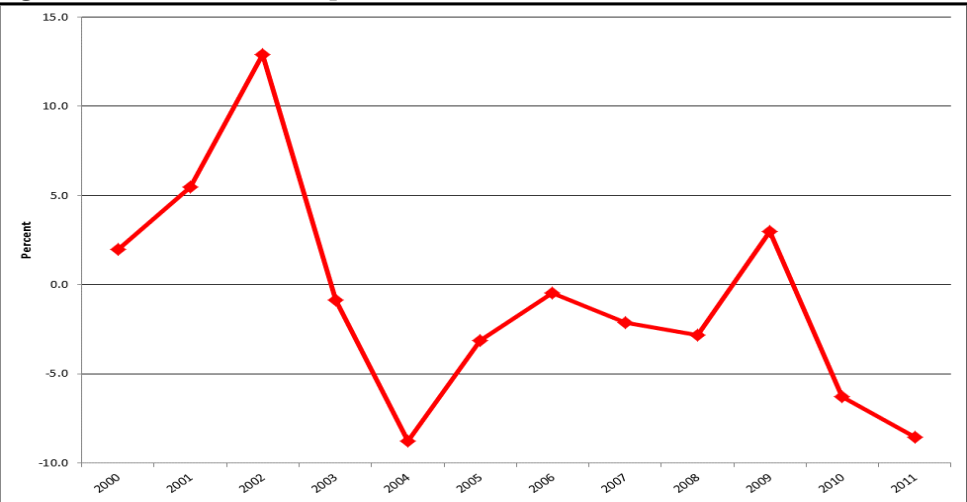
Figure 5-7 shows that Sierra Leone’s domestic savings have been low. Relative to the comparator countries, savings in Sierra Leone averaged about 2.4 percent of GDP annually over the period 2000-2011. The low savings signify that domestic resources are inadequate to finance investments. Undoubtedly the protracted conflict in the 1990s had adverse consequences for the already low domestic savings, which was typical of Sub-Saharan African countries at the time. The root cause, however, is the negative real deposit interest rates in Sierra Leone (Figure 5-8). Negative real interest rates tend to encourage consumption at the expense of savings.

Figure 5-7 Gross Domestic Savings for Sierra Leone and Comparator countries, 2000-2010



Source: World Development Indicators, 2012

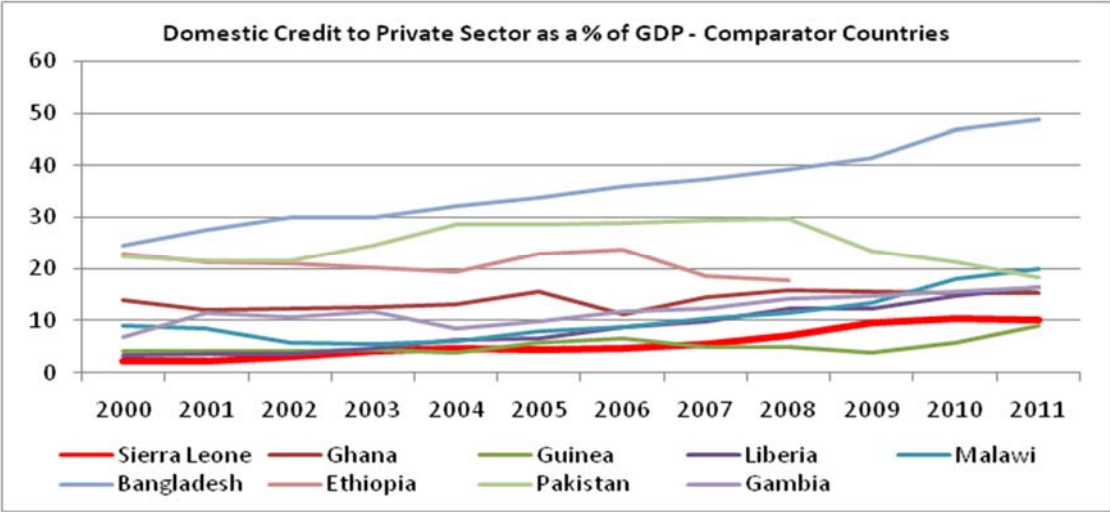
Figure 5-8 Trends in real Deposit rates in Sierra Leone, 2000-2011



Source: World Development Indicators, 2012

The low savings has also translated to low credit to the private sector. We note that credit to the private sector in Sierra Leone is weak relative to comparator countries. By 2011 for instance, credit to private sector as a share of GDP was about 7.6 percent and the lowest among the set of comparator countries (Figure 5-9). This low financial depth is a signal that credit might be a binding constraint. However this may also be an outcome of low demand for credit. We therefore investigate some more the nature of the credit market in Sierra Leone to see if low financial depth is because of a lack of demand and/or inadequacy of supply.

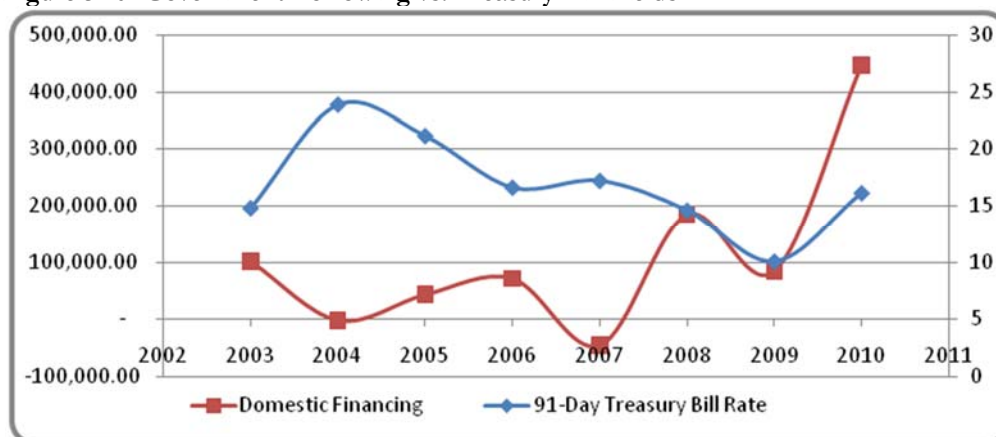
Figure 5-9 Domestic Credit to the Private Sector for Sierra Leone and Comparator countries, 2000-2010



Source: World Development Indicators, 2012

It is important to point out that interest rate outcomes in Sierra Leone are also a function of government fiscal behaviour, as large internal domestic debt tends to crowd out private investment. The process of crowding out arises from the fact that once the government borrows heavily from the domestic market, a shortage of loanable funds arises, forcing interest rates up. Between 2008 and 2010, a period of large deficit financing, the interest rate was an average of 13.6 percent.

Figure 5-10 Government Borrowing vs. Treasury Bill Yields



Source: Ministry of Finance; Bank of Sierra Leone

5.3 Tests of Access to Finance as a binding constraint to growth

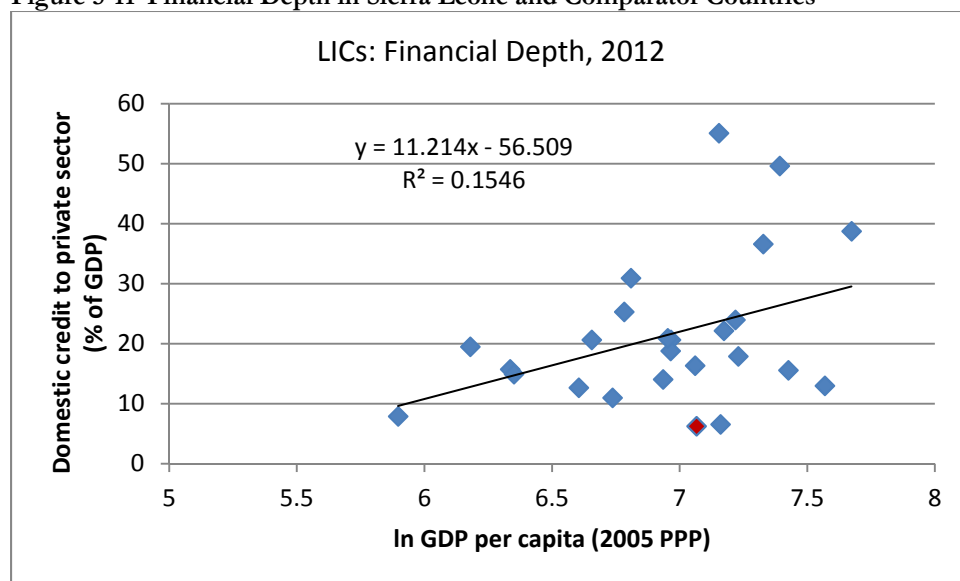
This section presents tests to show whether the cost of finance is a binding constraint or not in Sierra Leone. The tests include whether the shadow price of financing is high; whether movements in the cost of or access to finance are sufficient to expand private investment and hence growth; and whether Sierra Leonean firms are reliant on domestic financing.

5.3.1 Shadow Price of Finance

Interest rate is considered to be the key indicator in determining the shadow price of the cost of and access to finance. It is postulated that if indeed access to finance is a binding constraint to private sector investment in Sierra Leone, then the real lending interest rate, which is the price of finance, should be high. In Figure 5-2 above, the nominal interest rates have generally been high averaging about 23 percent over the past decade. This nominal interest rate translated into a positive annual real interest rate that fluctuated between 5-15 percent, with an average of 11 percent. However, in recent years, the real interest rate has remained below 10 percent, which is low in comparison to other LICs and LMICs. The interest rate spread, which shows the cost of financial intermediation, averages 14 percent annually. This is somewhat higher than comparators, indicating poor financial intermediation. The evidence presented earlier in the chapter suggests that the high real interest rate spread is a result of a combination of poor saving habits, high public sector borrowing, and poor intermediation.

However, to further determine whether indeed the cost of finance is a binding constraint or not to private investment, we assess the nature of the credit constraint by looking at the availability of credit to the private sector in Sierra Leone relative to comparators. Figure 5-11 shows the level of the financial depth in Sierra Leone as compared to other LICs.

Figure 5-11 Financial Depth in Sierra Leone and Comparator Countries



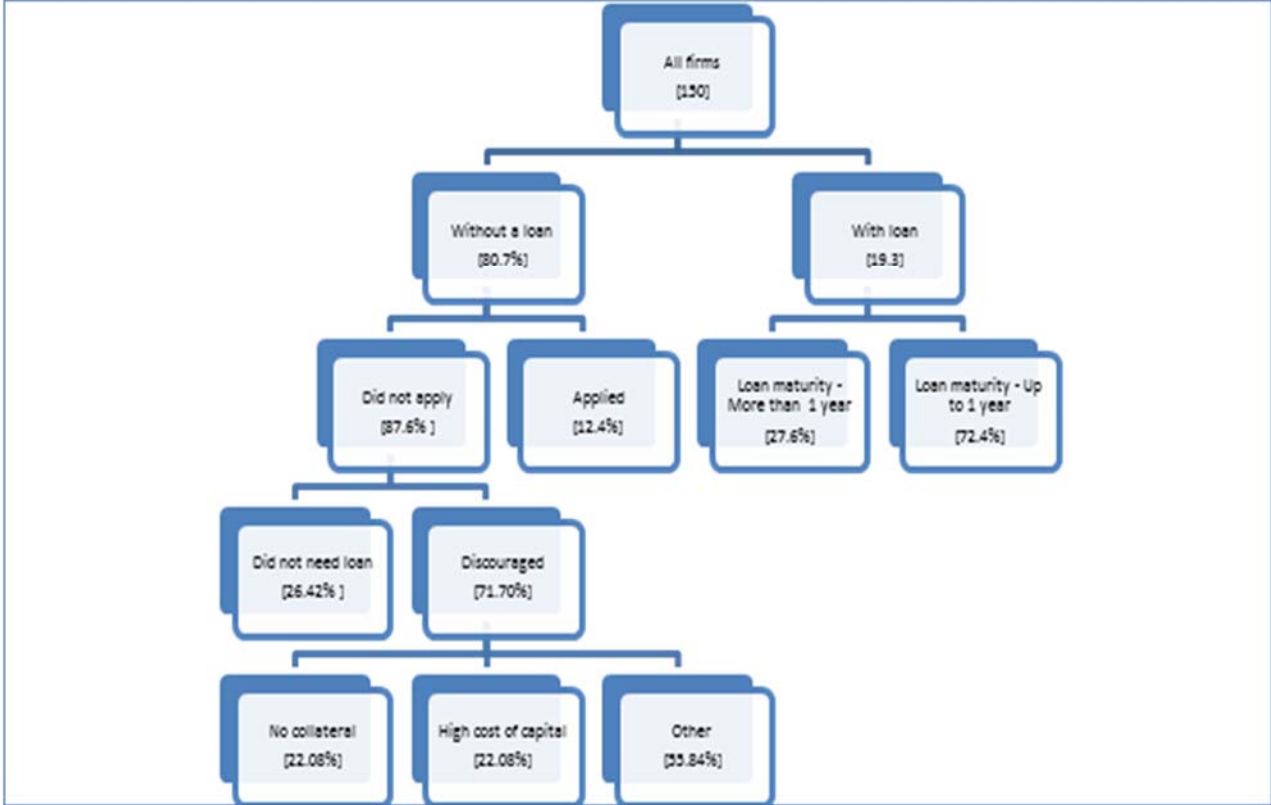
Source: World Development Indicators, 2012

Figure 5-11 above shows that financing depth is low in Sierra Leone compared to similar countries. The figure shows that the availability of credit to the private sector is weak. Despite this, as mentioned above, the real lending rate for Sierra Leone is low compared to her comparators. Since the price of capital is relatively low, we would expect credit to the private sector to be higher. Because the quantity supplied is low, even with a low price, we suspect that there is low demand for finance. If true, this would suggest that even though credit to the private sector may be low, it still may not be a binding constraint.

To further understand the demand side issues with respect to credit, we interrogate the enterprise survey data to gain a better understanding of the credit demand situation in Sierra Leone. We note that of the 150 firms interviewed, less than 20 percent had taken a loan from a bank at the time of the survey. In other words, more than 80 percent of firms had not taken a loan from a bank. Interestingly, most of the firms who had not taken a loan had simply not bothered to apply – about 88 percent of those who had not taken a loan said they had not applied for one. The reason they had not applied was because they were ‘discouraged’ or did not feel the need to apply. Among the reasons assigned for those who were ‘discouraged’ were the high costs of credit and also the collateral that banks request as part of credit applications. This could suggest both a supply and demand problem. On the supply side, high nominal interest rates could be deterring firms from applying for credit. On the demand side, it could mean that their returns and assets are not large enough to be creditworthy. It could also signal policy and institutional problems, such as insufficient property rights to enable collateralization, an inadequate credit registry system, or government borrowing crowding out private lending. It is noteworthy that in nationwide consultations in July/August 2013, stakeholders ranked the cost of finance as less

important than roads, power, water, education, health and the policy environment. For further information, please see Annex I presenting the results of the national consultations.

Figure 5-12 Nature of Credit constraint to enterprises



Source: World Bank Enterprise Survey, 2009

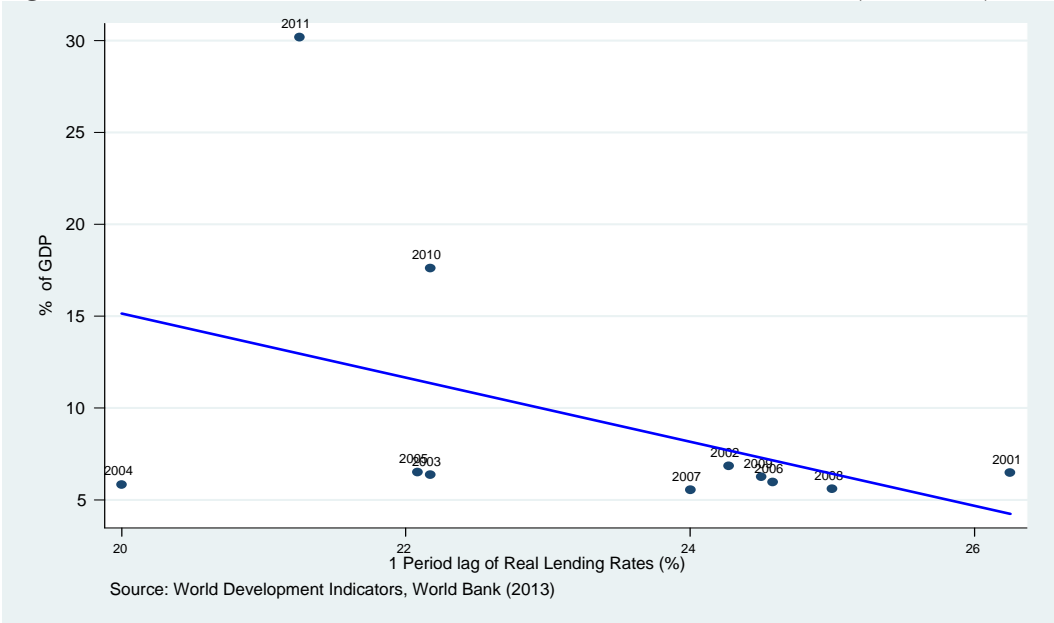
5.3.2 Growth Test

With respect to the second test, we note from the enterprise data that there is a high correlation between access to finance and a firm’s turnover. In particular the data shows that the median sales for firms that accessed loans was about Le750 million compared to about Le78.6 million for those who did not. Of course, we are not implying causation from this observed correlation, but it is indicative and supports the empirical literature which asserts that improving access and cost to finance does lead to firm growth (see Ellis, Lemma and Rud, 2010).

The growth effect can also be tested by observing the relationship between gross private investments and the one-period lagged real interest rates over the period 2000 - 2011 (Figure 5-15). It is observed here that the relationship between private investments and lagged real interest rates is generally negative. This suggests that lower interest rates have generally been associated with higher investments. However, the improved political stability could be part of the

explanation of the trends in investments. We can therefore say that the growth dividends of improving access to finance is likely to be positive in Sierra Leone.

Figure 5-13 Interest Rates v Private Investment Correlation in Sierra Leone (2000 – 2011)



5.3.3 Circumvention test

SMEs typically rely on non-bank financial services or family savings for their investments; it is difficult to get precise data on these levels of financing since a large majority of these enterprises are informal. For the large foreign firms, anecdotal evidence suggests that they tend to rely on international sources of finance, such as shareholders' equity and project finance from investment banking and development finance institutions. It is common knowledge that multinational firms reach out to their parent companies overseas for capital infusion.

5.3.4 Non-reliance test

Given that large foreign firms occupy a large share of the economy, we note that firms that thrive in Sierra Leone are those that do not rely so much on domestic finance. The results in Figure 5-13 gives indication of this as the large firms generally do not find credit to be a major obstacle.

5.4 Conclusion

We summarize the analysis in this chapter by noting that domestic rather than international finance has been a problem facing domestic firms. Real interest rates in Sierra Leone are presently low, although that is a recent phenomenon. Over the past decade, the data shows that credit to the private sector and investment increases when the interest rate falls. However, it also

shows that many firms cannot obtain loans and, therefore, engage in some form of self-financing for their investments. Despite this fact, the data also indicates that 87 percent of firms surveyed who are reportedly without a loan never applied; suggesting that low returns or appropriability to private investments could be larger constraints. Based on this information, we believe it is likely that the cost of financing is not one of the most binding constraints to growth. This conclusion is supported by the results of nationwide consultations in July/August 2013. This conclusion notwithstanding, the possibility for domestic finance to constrain private investments is high in the short-to-medium term, particularly if: (i) real interest rates return to historically high levels; and (ii) if other intermediation inefficiencies that are brought about by other factors that cause low social returns to investments to the banks continue.

6 Macroeconomic Risks

6.1 Macroeconomic Risks and Distortions

6.1.1 Introduction

The issue of macroeconomic stability is of central concern for developing countries, including Sierra Leone. Since private-sector economic activity is considered a more suitable engine for economic growth, and growth is required to provide a strong foundation for increasing standards of living for the growing population, achieving broad-based private sector led economic growth is considered one of the main objectives of macroeconomic management policies and programmes.

In the course of making investment decisions, economic agents consider the general ‘wellbeing’ of the environment in which they intend to invest. As a general principle, any form of macroeconomic instability deters investment, particularly those in the non-mining sectors; as it erodes the real returns to assets, in addition to other adverse effects posed. If there is widespread instability in an economy, then there is a high propensity for a lower rate of private investment and, thereby, lower growth. Macroeconomic instability also increases the risk of private firms becoming insolvent. As a result, public policies that reduce inflation; help to establish a competitive exchange rate; and ensure fiscal stability and sustainability are needed to maintain high rates of investment and growth. Policy regimes that entrench high and persistent domestic public debts tend to result in long-term interest rates that dampen the growth potential of the economy. Prolonged debt overhang is also potentially a massive impediment to economic growth. On the external front, a higher level of external debt could cause a high exposure to sovereign debt that could squeeze out the amount of funds available to the private investors and thereby increase private borrowing costs which ultimately lowers investment.

In theory, therefore, weak and unstable macroeconomic conditions can directly affect the appropriation of returns on private investments. Excessive fiscal deficits, for example, require large amounts of government domestic borrowing, and this drives up the real interest rate and potentially crowds out much needed private investment. Macroeconomic policies that result in an overvalued real exchange rate reduce the profitability of exporting and of producing goods and services that compete with imports. In economies where there are extended periods of macroeconomic instability, there is the tendency to discourage current investments as well as potential investors who will be concerned that inflation will wipe out the value of their investments. In a situation where such distortions are consistently evident, they can pose a major constraint to economic activities and, hence, growth.

This section examines the historical macroeconomic trends, focusing on major variables such as prices (inflation), government fiscal operations (deficits and borrowing), and the country’s

external sector (balance of payments and external debt). The section also examines the country's record in the area of macroeconomic management; based on the thesis that there is a positive relationship between sound macroeconomic policies and growth. The goal is to examine whether these macroeconomic conditions could signal a binding constraint to economic growth in Sierra Leone, and if so, to what extent.

Macroeconomists, central bankers and policymakers have often emphasised the costs associated with high and variable inflation. Inflation is a major indicator of economic stability; high and persistent trends of increases in the general price levels in any economy are a signal of economic instability. The Bank of Sierra Leone, in its capacity as the Central Bank and custodian of the country's monetary policy, has over the years had price stability as a major institutional policy objective. Andres and Hernando (1997) note that monetary authorities operate on the assumption that faster growth will occur in a climate where inflation is low. This is essentially because higher inflation discourages investments as it imposes a higher cost on investors in the form of planning. Demand is also affected as the real incomes of consumers are reduced.

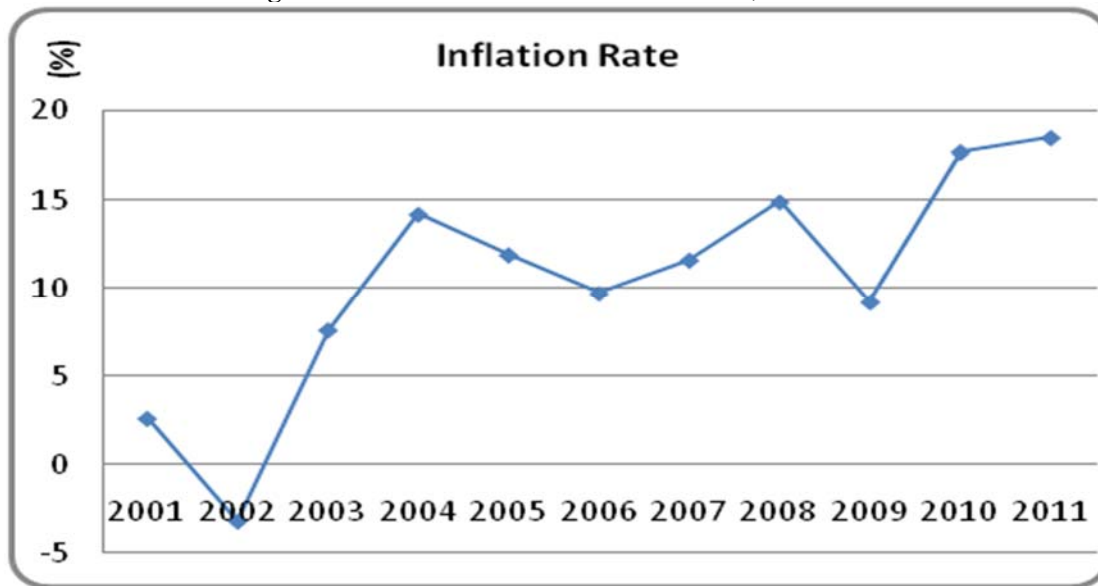
Over the decade 2001 to 2011, although monetary policy objective of the Central Bank of Sierra Leone was to achieve a single digit rate of inflation, the country recorded a double digit rate of inflation in the economy for most of the period. The country is a net importer of food and oil, and as such any increase in the prices of these commodities impacts on the level of inflation in the country. The extent of the impact, however, may vary depending on a number of other economy-wide conditions.

6.1.2 Analysis of Inflation Trends (2001-2011)

Figure 6-1 shows the average annual rate of inflation for Sierra Leone covering the period from 2001 to 2011. The inflationary trend generally increased over the period under review. Inflation fell from the 2001 level of about 3 percent and was on average negative in 2002, reflecting increased availability of imported consumer items, restraint in monetary expansion, and further reduction in import tariffs, large donor inflows and the relative stability of the exchange rate.

Inflation accelerated in 2003 to 8.2 percent, in part reflecting higher fuel prices, broad money growth, and the impact of the exchange rate depreciation against the U.S. dollar. This upward trend continued and the country recorded double digit inflation (2004 – 2005) as a result of fuel prices and monetary expansion. Inflation again fell to 8.3 percent due to tight fiscal stance, supported by adequate monetary policy despite pressures stemming from the pass-through of high world oil prices (IMF 2007).

Figure 6-1 Inflation Trends for Sierra Leone, 2001-2011



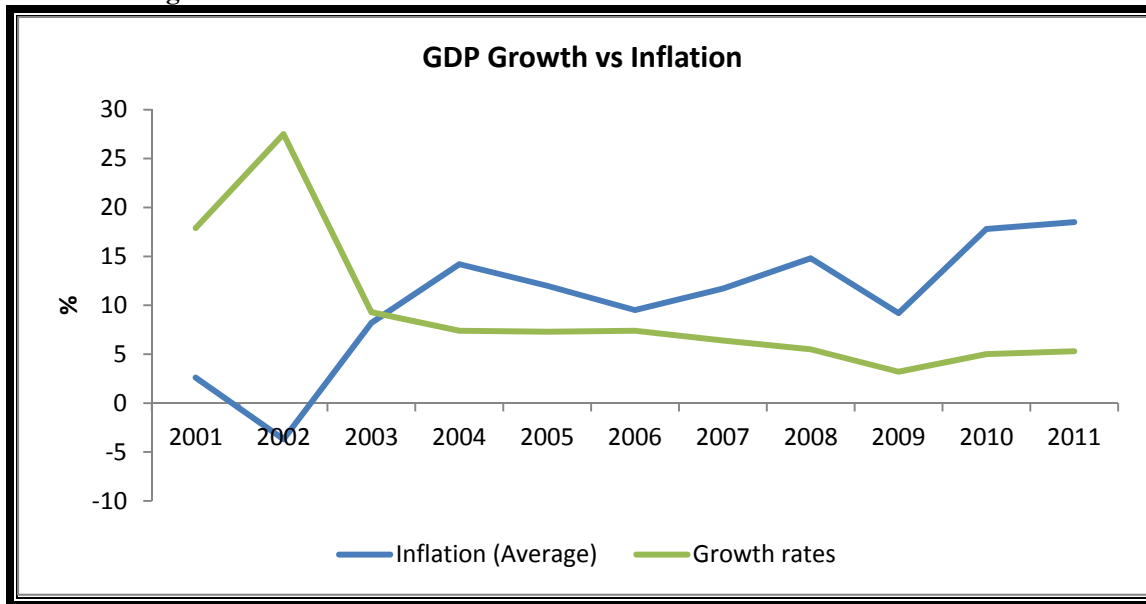
Source: Ministry of Finance and Economic Development & Statistics Sierra Leone (SSL)

However, inflationary pressures re-emerged and reached 18.5 percent in 2010, largely due to the global oil and food crisis that affected most economies in the world during this period.

6.1.3 GDP Growth and Inflation

One of the most fundamental objectives of macroeconomic policies is to sustain high economic growth together with low inflation. However, there has been considerable debate on the nature of the inflation and growth relationship. The relationship between inflation and economic growth remains a debatable issue among policy makers today. Figure 6-2 shows the trends in inflation and GDP growth. Between 2001 and 2004, inflation and growth moved in opposite directions, which is consistent with general theory. Between 2005 and 2011, however, inflation and growth seem to follow a similar trajectory. Growth in GDP over the period was driven mainly by developments in agriculture, construction, and services sectors, whilst inflation was as a result of expansionary monetary policies to accommodate fiscal pressures and the increase in the international prices of fuel and oil.

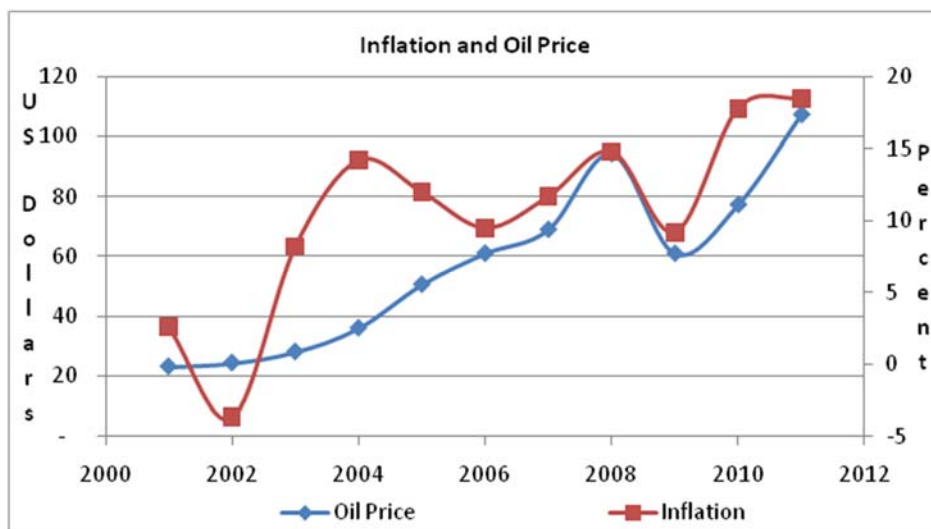
Figure 6-2 GDP Growth vs. Inflation



Source: Ministry of Finance and Economic Development

The foregoing scenario suggests that over the period, particularly in the second half of the decade, inflation did not have a significant adverse effect on economic activity and growth.

Figure 6-3 Inflation and Oil Price



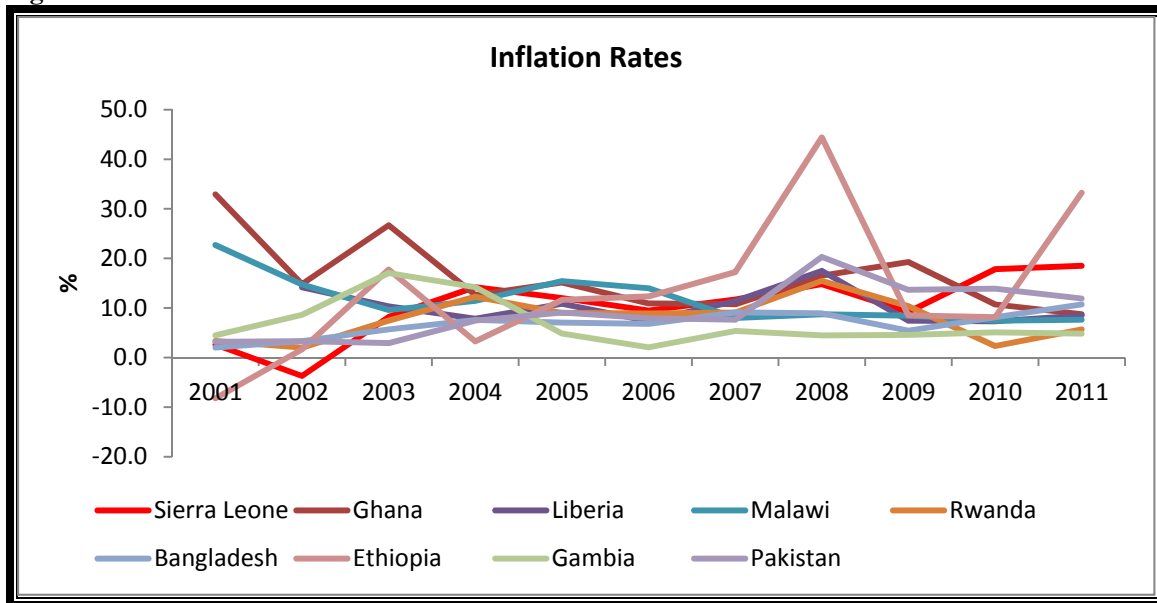
Source: Ministry of Finance and Economic Development

Over the review period, the movement in the international price of oil resulted in an increase in the level of inflation in the country. Figure 6-3 shows that inflation in the country tends to move in line with the price of oil in the international market.

6.1.4 Comparative Country Analysis

In order to put the analysis of Sierra Leone's inflationary performance within context, the inflation rates of similar countries (geographic and economic) were juxtaposed, to determine how it behaves when compared to the others. The goal is to observe whether the country's performance is significantly different from the others, and if so, in which direction. Figure 6-4 shows a cross-country comparison of inflation rates among 6 countries in the African region, two of which are geographically contiguous to Sierra Leone.

Figure 6-4 Inflation Rates



Source: World Development Indicators, 2012

As can be seen in Figure 6-4, inflation rates for Sierra Leone have been relatively high compared to other countries in the region. In the earlier periods of the decade, inflation rates fell to single digits. Although the average annual rates of inflation for Sierra Leone are mostly in the double digit from the mid-2000s to the end of the decade, it still did not record the highest inflation rates when compared to the other selected countries. Movement in the level of prices in the Gambia and Niger were lower than other comparator countries for most of the period under review. Furthermore, it can be seen that inflation rates were slightly below the comparator countries' average in the early 2000s; about the mean during the mid-2000s; and higher than all other comparator countries from 2009-2011. Sierra Leone can be judged to have underperformed in relation to its comparator countries, particularly in the latter part of the period under review. This may speak to the fact that domestic savings and, hence, investments could have been lower than the economy's true potential as a result of these high inflation rates, causing real interest rates on savings to be negative.

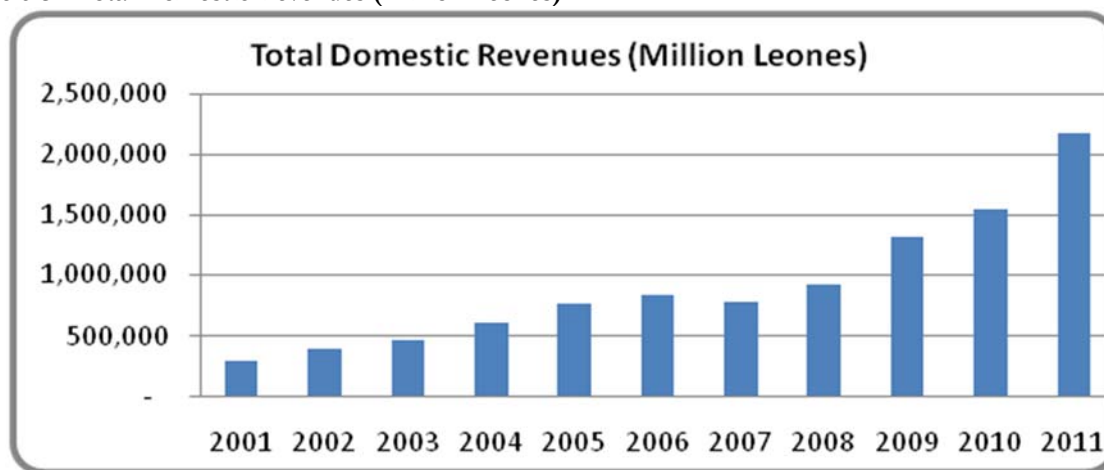
6.2 Government Fiscal Operations

The impact of fiscal deficit on economic growth is one of the highly debated issues in all world economies. The target of achieving sustained growth while maintaining macroeconomic stability is the main public policy objective of many developing countries and has brought the issue of fiscal balance into sharp focus. In developing countries, fiscal deficit is a recurring problem due to revenue and expenditure mismatches. The problem arises when the deficit level becomes too high and chronic. The ill-effects of high deficits are linked to the way they are financed and how it is used. Excess use of any particular mode of financing of the fiscal deficit has adverse macroeconomic consequences. For example, *seigniorage* financing of fiscal deficits can create inflationary pressures in the economy; bond financing of fiscal deficit can lead to a rise in interest rates and in turn can crowd out private investment; and the external financing of fiscal deficit can spill over to balance of payment crisis; an appreciation of exchange rates and in turn debt spiralling.

6.2.1 Government Revenue

During the past 10 years, Sierra Leone has implemented a set of fiscal reforms aimed at strengthening public finances, enhancing resource allocation and contributing to macroeconomic stability. The fiscal policy stance has been consistent with macroeconomic stability and medium term fiscal and debt sustainability. Even though Sierra Leone is a resource-rich economy, its revenue generation capacity has been quite low, with revenue to GDP ratio below the level required to make progress towards achieving the MDGs (UNDP, 2005).

Figure 6-5 Total Domestic Revenues (Million Leones)

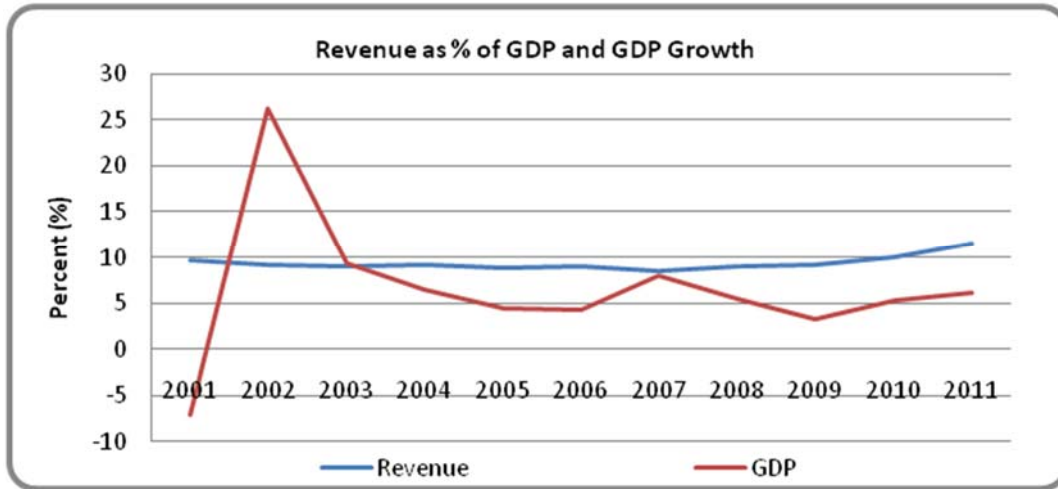


Source: Ministry of Finance and Economic Development

In 2011, revenue collection stood at about 11 percent of GDP, well below that of other comparator countries and also compared unfavourably with other fragile (and resource-rich) countries (Nair 2012). Figure 6-5 shows the trend in domestic revenues between 2001 and 2011, in absolute Leone terms. Figure 6-6 shows a comparative analysis of revenue as a percent of

GDP, as well as the GDP growth for the period under review. From 2003 onwards, GDP growth and revenue: GDP ratio both moved in the same direction.

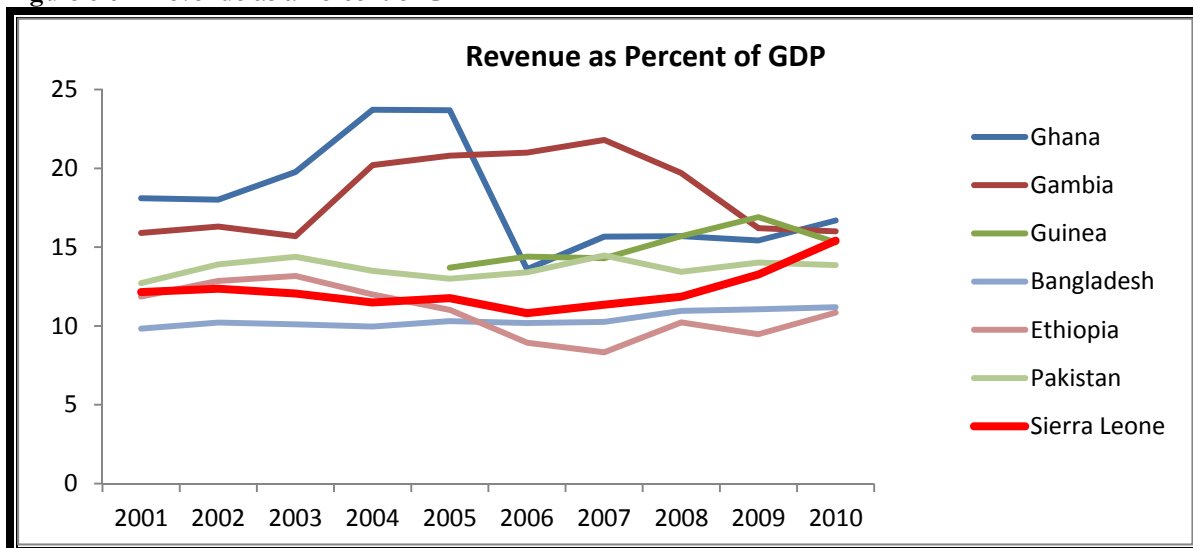
Figure 6-6 Revenue as % of GDP and GDP Growth



Source: Ministry of Finance and Economic Development & Statistics Sierra Leone

Figure 6-7 on the other hand shows Sierra Leone’s performance in revenue generation as compared to the comparator countries. It illustrates two things; first, it shows a relatively flat trend in revenue performance, relative to GDP. Even though domestic revenues are seen to increase in absolute Leone terms, as shown in Figure 6-5, they remained fairly constant over the period under review, relative to GDP.

Figure 6-7 Revenue as a Percent of GDP

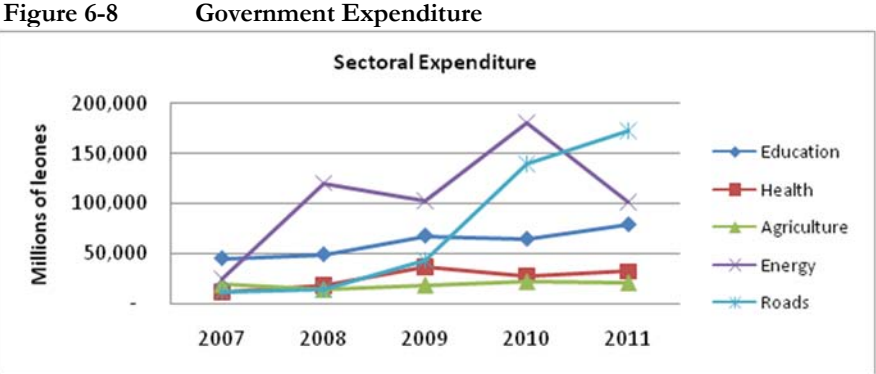


Source: World Development Indicators, 2012

Secondly, it indicates that the overall performance in revenue is relatively weaker than the comparator set of countries. Whereas there could be several explanations for this situation, one could still argue that the revenue effort could be improved in Sierra Leone with more enhanced tax administration measures.

6.2.2 Public Expenditure

Immediately after the end of the war in 2002, Government expenditure was skewed towards the security and social sectors, mainly to ensure peace and stability, and the reconstruction and rehabilitation of social amenities. However, since 2008, Government has focused on rationalizing recurrent expenditure with the aim of stepping up investments in infrastructure (energy and roads), agriculture and human development (Figure 6-8).

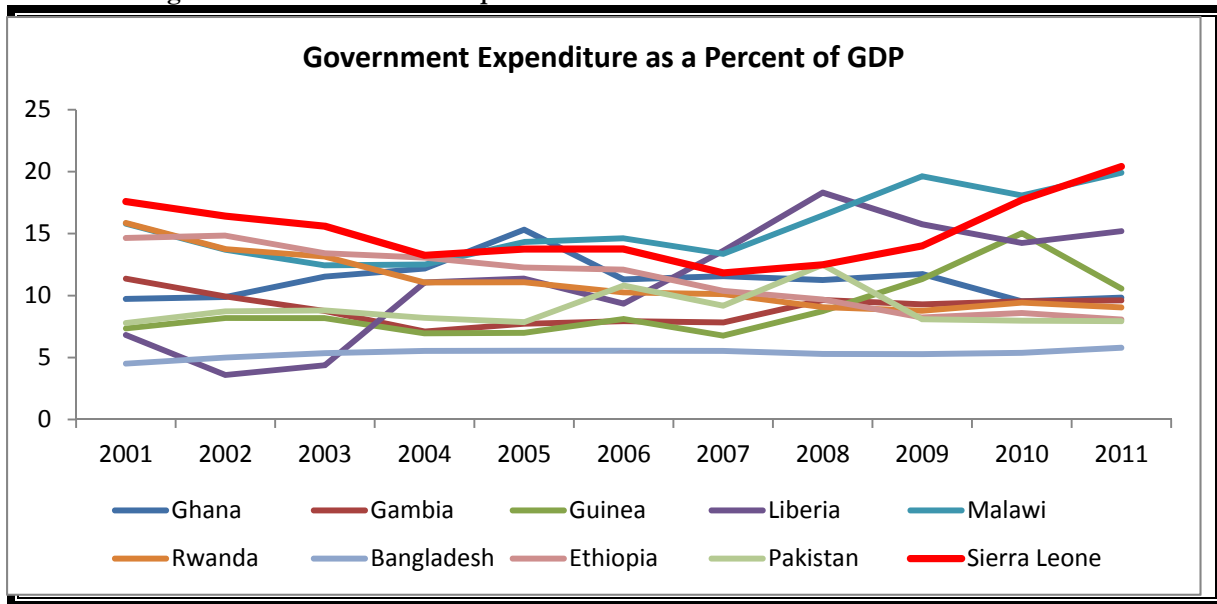


Source: Ministry of Finance and Economic Development

6.2.3 Comparative Country Expenditures

Between 2001 and 2007, the share of expenditure as a percentage of GDP generally declined. However, since 2007 the ratio has been increasing. Compared to the comparator countries in this study, Sierra Leone’s ratio of expenditure to GDP fell in the median range between 2001 and 2007; and thereafter has been the lowest (Figure 6-9).

Figure 6-9 Government Expenditure as a Percent of GDP

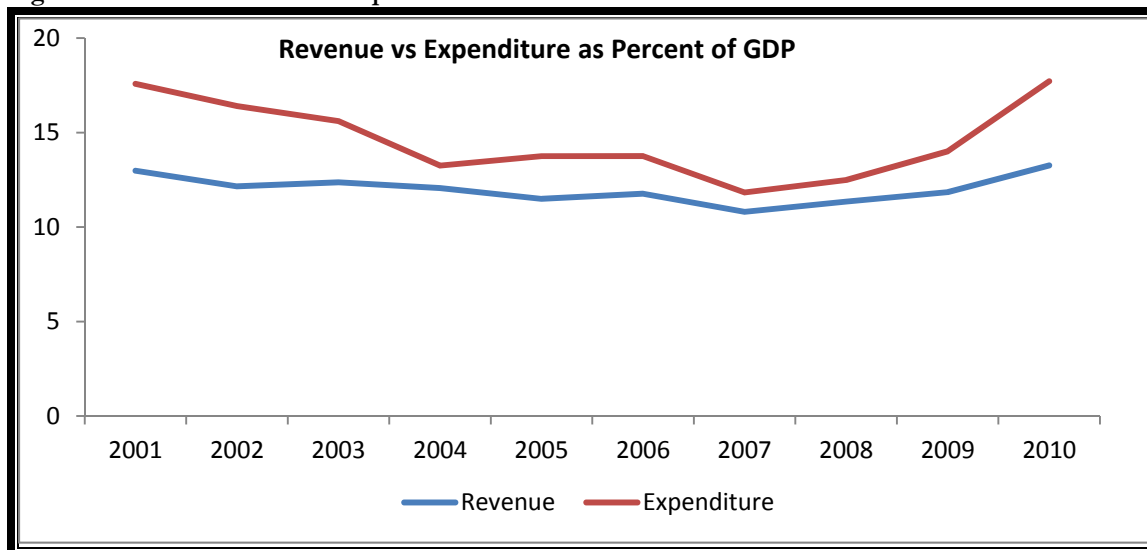


Source: World Development Indicators, 2012

6.2.4 Revenues and Expenditures to GDP

As can be seen from Figure 6-10, domestic revenues have consistently and significantly been exceeded by government expenditures for the period under review. This trend was marginally narrowed in 2007, when a cash budget system was implemented. The persistent high deficit poses severe macroeconomic risks, particularly via the higher propensity to engage in domestic borrowing (4.4% of GDP in 2010) and hence crowd out the private sector.

Figure 6-10 Revenue vs Expenditure to GDP

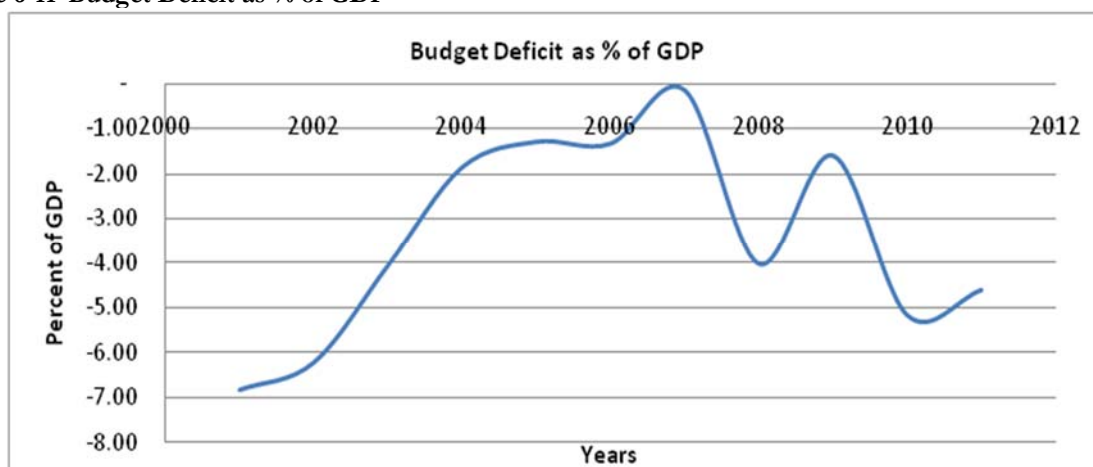


Source: Ministry of Finance and Economic Development

6.2.5 Fiscal Balance

It is useful to note that large fiscal deficit-to-GDP ratio is inimical to economic growth. The government's limited revenue relative to its expenditure has consequences for current as well as future budget balances. Financing these deficits enlarges the public debt. In consequence, interest payments on the public debt absorb a substantial portion of revenue. When Government borrows to finance its deficit, it absorbs resources that may otherwise be used by the private sector for investments. However, if government decides to finance this debt by printing new notes, this will create inflationary pressures which in turn will erode investor confidence. As shown in the Figure 6-11, the deficits are partly offset by grants provided by development partners. However, the resulting gaps are still financed largely through borrowing, from the domestic financial markets and from international development financial institutions.

Figure 6-11 Budget Deficit as % of GDP



Source: Public Debt Unit (PDU), MOFED

6.3 Public External Debt

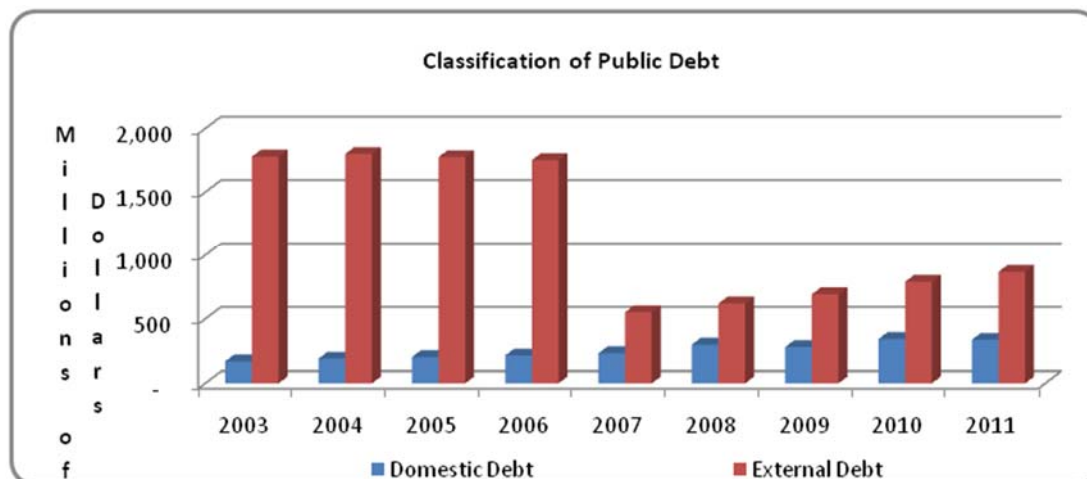
Public debt management is an integral part of the overall macroeconomic management and financial governance system which underpins Government efforts in promoting accountability and transparency in the public sector.

Sierra Leone's total debt stock, as at December 31, 2011 stood at 1.2 billion USD as against 1.9 Billion USD⁷ in 2003 indicating a decrease of 743 million USD or (a reduction by 38 percent). External debt amounted to 868 million USD or 72.1 percent of the total, whilst domestic debt amounted to 336 million USD or 27.8 percent. However, in between this period, there was a substantial decrease in the external debt as a result of benefits from the heavily indebted poor countries (HIPC) initiative and the multilateral debt relief initiative (MDRI). External debt fell

⁷ Public Debt Unit

sharply to about 553 million USD, resulting from stock cancellation under the MDRI in December 2006

Figure 6-12 **Classification of Public Debt**



Source: Public Debt Unit, Ministry of Finance and Economic Development

After the significant fall in 2007, the debt stock reverted to its upward trend to reach US\$1.2 billion (Le 4.7 trillion) as at end 2011 (Figure 6-12). This increase was attributed to mainly the depreciation of the Leone against major loan currencies; and the increase in government expenditure on infrastructure projects.

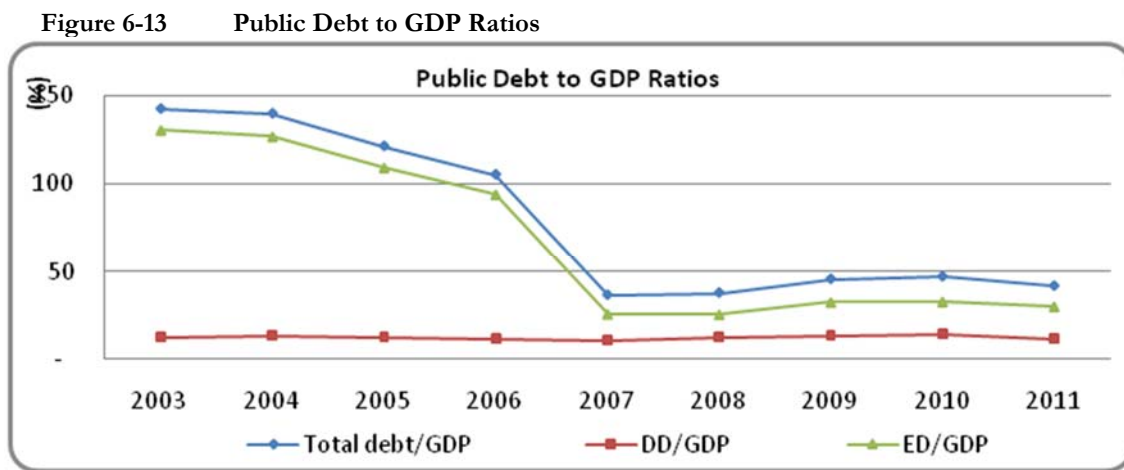
6.3.1 Public Debt Stock Trends

The total stock of public and publicly guaranteed external debt stood at US\$868.49 million (equivalent to Le3.8 trillion) as of end December 2011. This was an increase of about 9.8 percent from the 2010 of US\$790.87. The external debt ratio (% of GDP) fell from about 225 percent in 2003 to about 33 percent in 2007. This reduction was largely a result of debt relief enjoyed by Sierra Leone under the Multilateral Debt Relief Initiative (MDRI), comprising World Bank, AfDB and the IMF. From about 2008, the external debt ratio has assumed an upward trend and by 2011 had reached about 42.1 percent (Government of Sierra Leone, 2012).

Maana, Owino and Mutai (2008), note that there are various reasons why Governments undertake domestic debt financing. Two of the more important reasons discussed are as follows. First, they note that domestic debt is sometimes contracted to help finance budget deficits. Second, domestic debt can occur when governments implement its monetary policy through open market operations. In that case the government through the central bank will be mopping up excess liquidity by issuing bonds.

Excessive domestic borrowing does have implications for private sector investment. In particular it tends to crowd out private sector investment as it drives interest rates up. This in turn increases the cost of borrowing and consequently the cost of doing business. Maana, Owino and Mutai (2008) notes that there is evidence that domestic debt has a significant crowding out effect on private investments.

To determine the ability and solvency of the country in honouring her debt, we present in Ratios debt ratios used for such analysis. Domestic Debt/GDP ratio has almost been the same for the period 2003 – 2011 while External Debt/GDP ratio has been on a decline for the same period. The decline was as a result of the debt relief the country benefited from under the HIPC initiative.



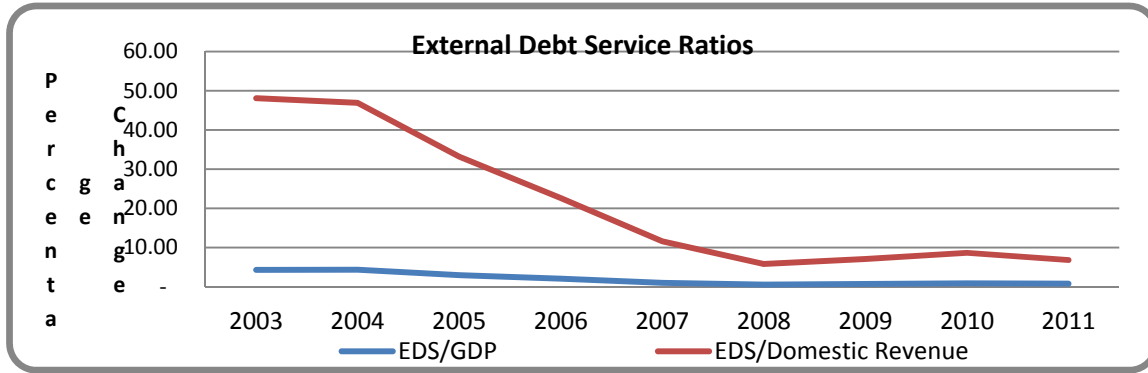
Source: Public Debt Unit, Ministry of Finance and Economic Development

6.3.2 External Debt Service Trend

The Post Completion Point period has seen a drop in annual external debt service to an average of about US\$18 million to US\$20 million compared to over US\$40 million prior to Sierra Leone reaching Completion Point. Total external debt service payment in 2011 amounted to US\$17.8 million. Comparing the ability of government to service its external debt, Figure 6-14 presents the above situation. From, the external debt servicing to GDP ratio has almost been constant for the period under review. However, the external debt servicing to Domestic Revenue ratio declined until 2008, when it stabilized somewhat, but with a slight increase until 2010. The decline in the debt service ratios up to 2008 was largely due to debt relief. Unfortunately Sierra Leone, as with all other developing economies, does not have the luxury of debt relief in the short to medium term, particularly in the light of the aftermath of the global financial crisis. Therefore increasing stock of debt to GDP ratio should begin to raise alarm bells even if the current debt is sustainable. In order to ensure sustainable debt ratios in the short to medium term,

it is essential that national output grow substantially, whilst also improving on domestic revenue mobilization.

Figure 6-14 External Debt Ratios

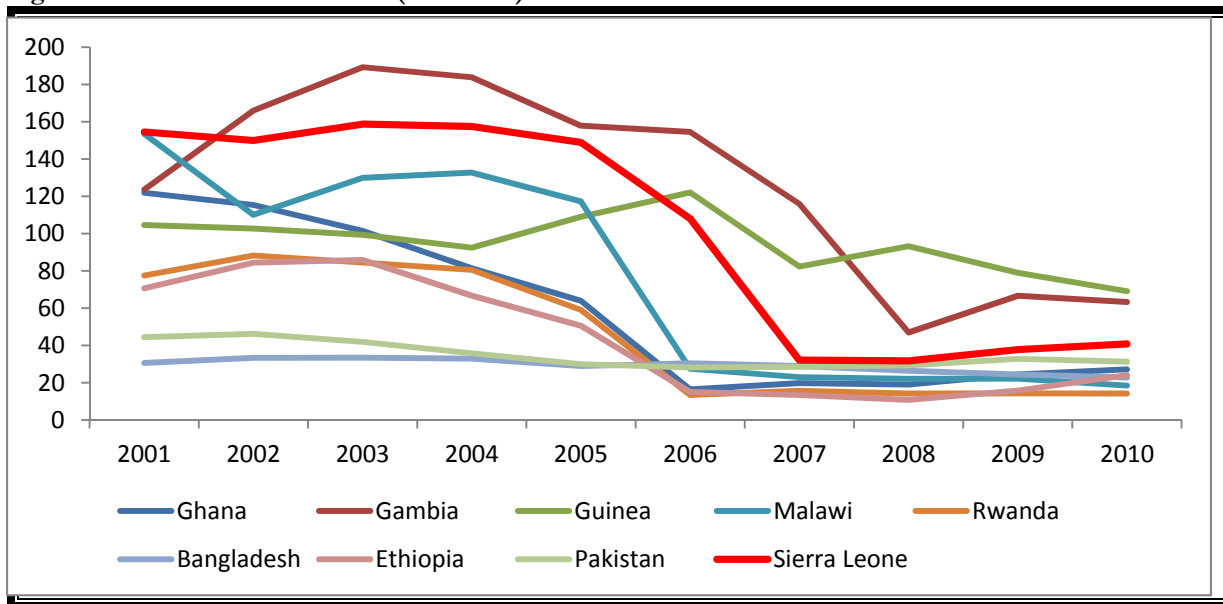


Source: Public Debt Unit, Ministry of Finance and Economic Development

6.3.3 Comparative Country Analysis: Public Debt Stocks

Figure 6-15 shows Sierra Leone’s public external debt in comparison with comparator countries.

Figure 6-15 Public External Debt (% of GNI)



Source: World Development Indicators, 2012

Sierra Leone is at par historically (from 2001 to 2011) with almost all the other countries apart from Liberia whose public external debt position was extremely high in the earlier years but took a dive from its high in 2003 and joined the others in 2010. The Government is aware that

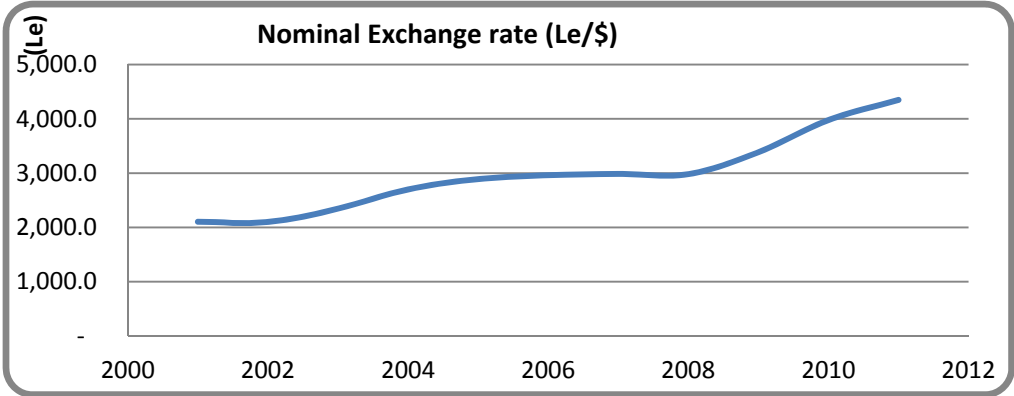
medium to long-term debt sustainability requires prudent borrowing policies and is keen to ensure that new loans are contracted or guaranteed on highly concessional terms.

6.4 Exchange Rates

Exchange rates are among the most important prices in an open economy. Prior to the adoption of the managed float in April 1990, the fixed exchange rate regime in place was associated with a growing fiscal deficit, uncontrollable money supply leading to inconsistent monetary expansion with high inflation, real exchange rate appreciation, frequent devaluations, increased smuggling of diamond, gold and other produce, thereby undermining the balance of payments, all of which facilitated capital flight and served as a deterrent to significant capital inflow (Bank of Sierra Leone).

With the adoption of a managed float in April 1990 and subsequently a flexible exchange rate regime, the premium between the official and parallel market rates has significantly reduced, thereby bringing the much needed stability in the foreign exchange markets.

Figure 6-16 Nominal Exchange rate (Le/\$)



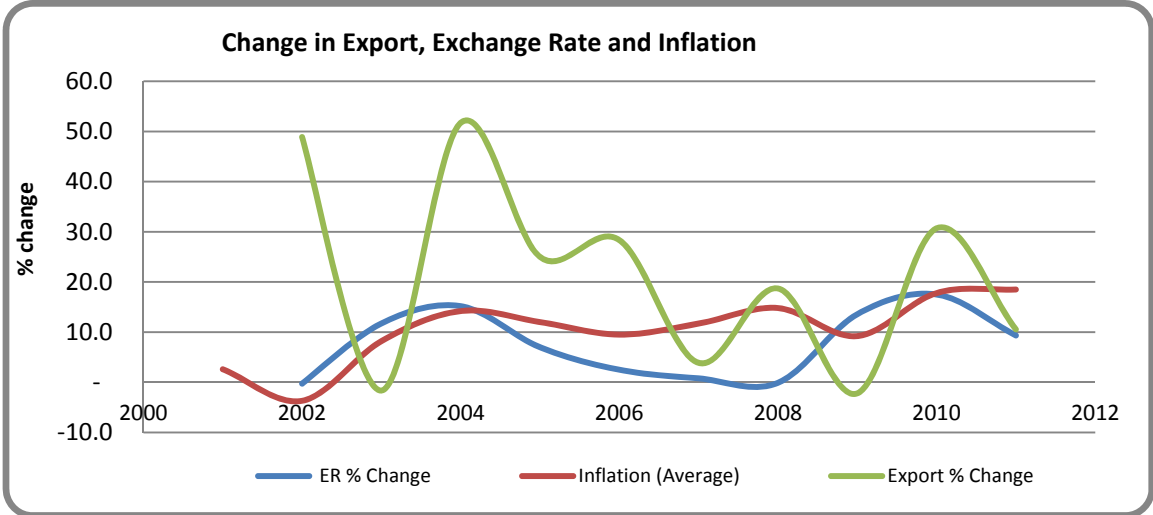
Source: Bank of Sierra Leone

Over the last ten years, the exchange rate has remained market determined and the Leone has depreciated against the major currencies in the world over this period (Figure 6-16). In 2010, the global financial and economic crisis severely impacted on the exchange rate with the Leone depreciating by over 20 percent against the US Dollar as a dramatic drop in exports and inward remittances reduced the availability of foreign exchange.

Even though the Leone depreciated against major currencies over the last decade, which should in theory make exports cheaper and imports more expensive and thereby improve the terms of trade; in reality the rate of growth of exports has not behaved in a normal pattern in response to movements in the nominal exchange rate as shown in Figure 6-17. The continuous depreciation of the Leone against the US Dollar and other major foreign currencies was accompanied by

drops in exports over the period; except for 2010 when mineral exports gained momentum as a result of an increase in mining activities and the number of mining companies in the country (Figure 6-17). This trend further speaks to the undiversified nature of Sierra Leone’s export sector, which is heavily dominated by minerals.

Figure 6-17 Change in Export, Exchange Rate and Inflation



Source: Bank of Sierra Leone

The economy’s output in the agriculture and fisheries sectors, which are major contributors to GDP, do not meet international trade standards and mostly cannot be exported.

6.5 Macroeconomic Management Policies

The end of the protracted war in Sierra Leone in 2002 has seen improved stability in the political and economic environment. It has re-established its domestic security and is increasingly entrenching democratic governance. The economic management of Sierra Leone has seen marked improvement over the last decade. The Government is reported to have successfully implemented over 5 macroeconomic management programmes over this period. These include the IMF Poverty Reduction and Growth Facility (PRGF) arrangements, World Bank Governance Reform and Growth Credit, the African Development Bank Economic Reform Governance Programme and others over the period (African Development Bank 2012).

The macroeconomic situation of the country is expected to improve with an estimated real GDP growth of 15.2 and 14.1 percent in 2013 and 2014, respectively. The mining sector, particularly iron ore production, will continue to sustain the high economic growth experienced in 2012.

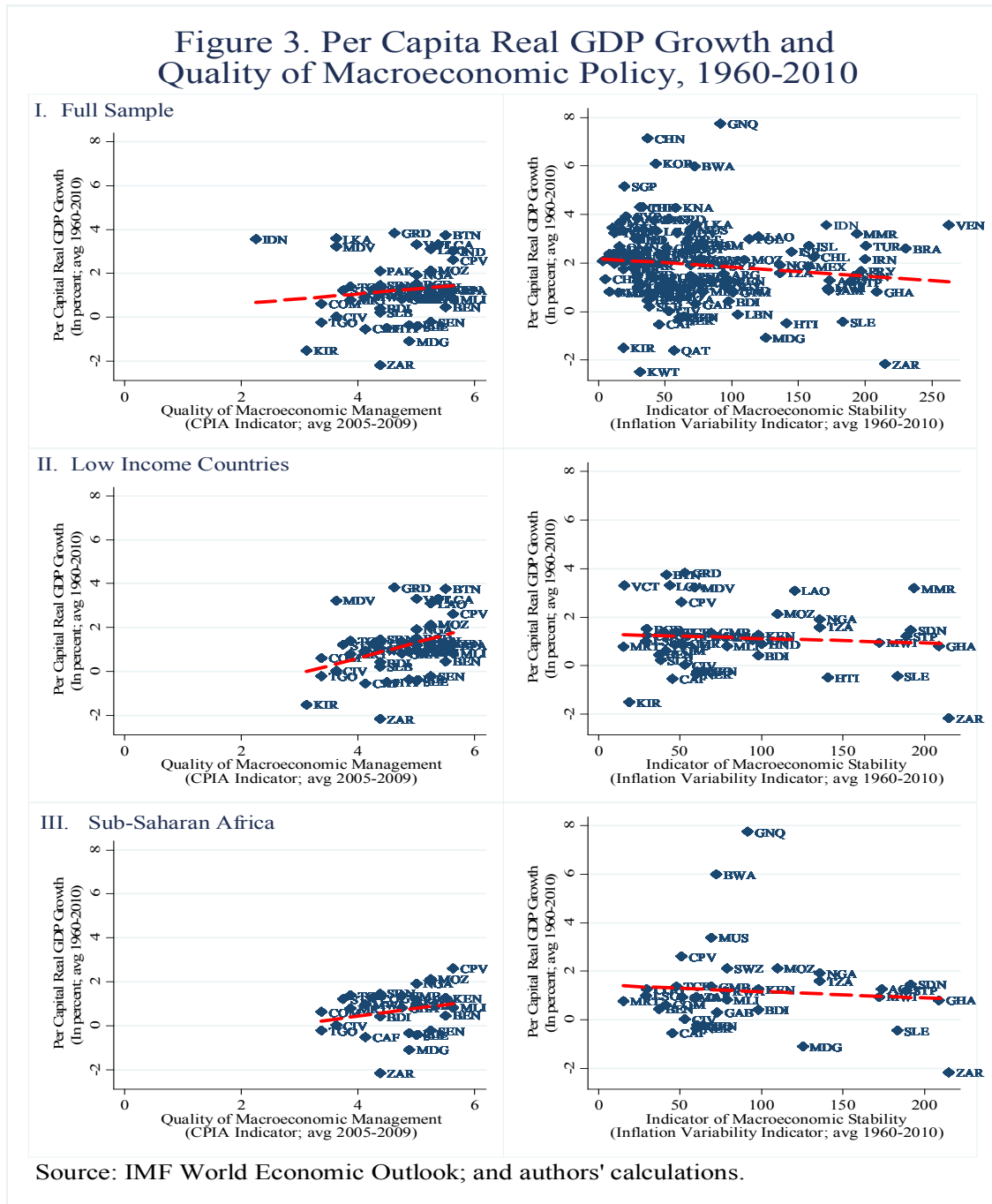
The planned expansion in iron ore output by African Minerals and London Mining, investment in transport facilities linking the mines to sea ports and favourable mineral prices would further strengthen growth in the mining sector. Countries that are heavily dependent on natural resources

typically experience a phenomenon referred to as ‘Dutch Disease’. This is where the increased foreign inflows, usually from the resource boom, have adverse effect on the tradable sector of the economy (Sachs and Warner 2001). In relation to the case of Sierra Leone specifically, prior to the export of iron ore in 2012, there was no strong evidence of this occurring. However, there is some evidence which is reflected in co-movement in the amount of FDI inflow, the increase in exports, and also the appreciation of the exchange rate in 2012. Moreover, there is some more anecdotal evidence of increasing wages and general prices (e.g. housing) in mining areas (e.g. Makeni), which is related to Dutch Disease effects.

In addition, the government’s drive towards self-sufficiency in rice production as well as the recent commencement of commercial agricultural projects is expected to boost agricultural output. The services sector will continue to expand on the backdrop of growth in the telecommunications and mining-related services coupled with efforts to improve infrastructure. However, supply-side constraints and competition from cheap imports will constrain output in the manufacturing sector.

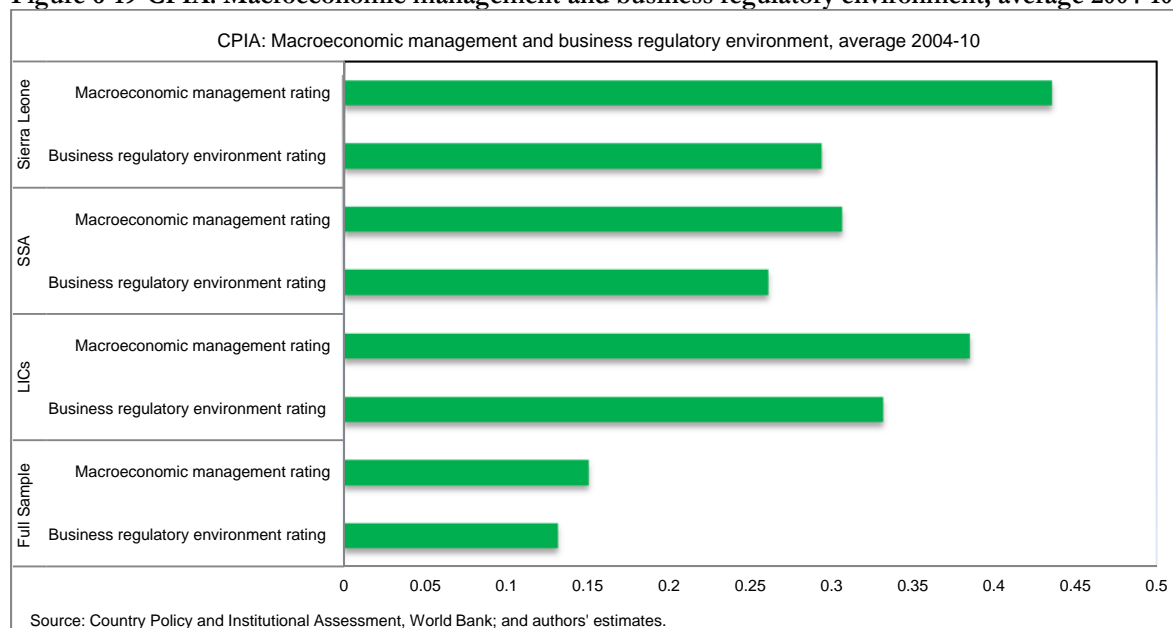
Sound monetary policy coupled with stable exchange rates, improved food production and stability in international commodity prices will continue to push inflation downward to single digit in the medium term. Fiscal policy will be focused on creating fiscal space for high-priority public investments to spur long-term growth and development. The external sector is expected to remain buoyant on account of strong performance in exports, particularly mineral exports. Furthermore, imports are expected to decline with the reduction of high capital imports for mining and infrastructure projects.

Figure 6-18 Per Capita Real GDP Growth and Quality of macroeconomic Policy, 1960-2010



The following chart (Figure 6-19) shows Sierra Leone's Country Policy and Institutional Assessment (CPIA) in macroeconomic management and business regulatory environment as compared to other countries in Sub Sahara Africa, Least Industrialized Countries and a global sample.

Figure 6-19 CPIA: Macroeconomic management and business regulatory environment, average 2004-10



Evidence from the recent economic survey conducted by the Ministry of Finance and Economic Development in March 2012, shows that large firms are able to survive in the present macroeconomic environment despite the high level of inflation and the high cost of borrowing from the commercial banks. Smaller contractors mainly performing Government services might be constrained especially if Government fails to meet its financial commitments on time. This has the tendency of increasing their cost of borrowing from the banks.

7 Microeconomic Risks

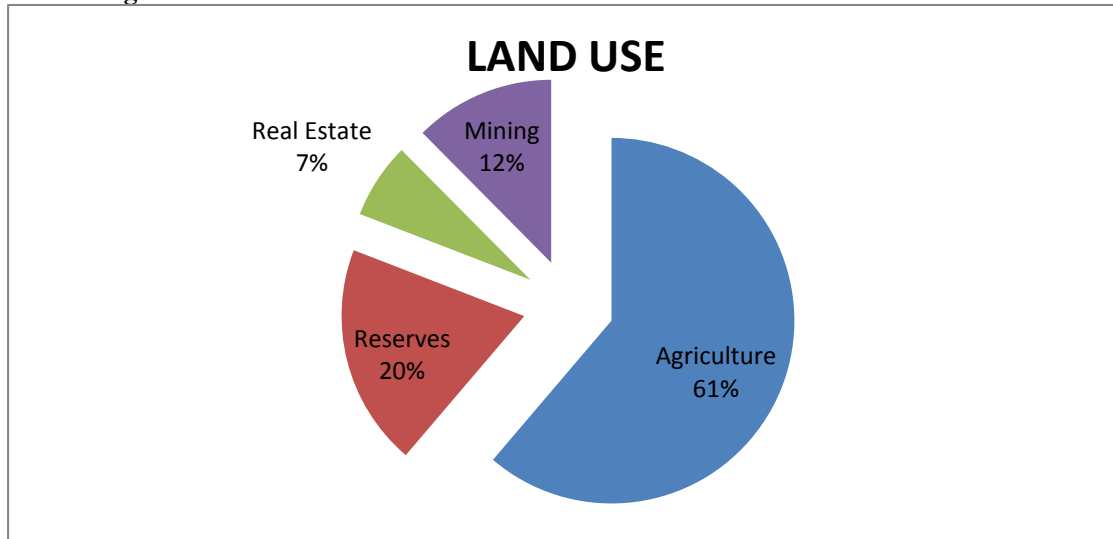
The enabling environment created by government policies and actions could impact the observed levels of entrepreneurial activity in an economy. The institutional structures in the economy affect the capacity of investors to appropriate the returns of their productive efforts, through a variety of actions. Because of this, government policies and institutions bear exacting importance as a crucial ingredient of facilitation, organization and encouragement of economic activity. In addition, entrepreneurs in the economy will invest their resources primarily if they expect to realize sufficient returns to compensate their efforts. Anything that compromises expected return hampers investment and, ultimately, causes growth to contract.

Risks to such appropriation can emanate directly from government and could be in the form of micro risks. The micro risks may be insecure property rights and inability to access land, excessively high taxation, uncertainty in contracts, high incidence of corruption, unpredictable and inefficient regulatory environment. All these are vital factors to potential investors when appraising what they could possibly realize from their investment. As these risks manifest within the economy, investment and entrepreneurship are discouraged, social gains from economic activities are reduced and, subsequently, growth can be constrained. It is therefore imperative to consider if Sierra Leone's policy and institutional framework is in fact weakening the ability of investors to appropriate their returns to economic activity. This section of the study explores the various reasons why investors could be unable to sufficiently appropriate the return on their investment, in turn lowering their motivation to invest and eventually slowing down economic growth.

7.1 Property Rights (Land Tenure)

Sierra Leone has an estimated population of 5.9 million people and a total land area of 71,740 square kilometres, of which 61 percent is used for agricultural and 39 percent is forest. 4 percent of Sierra Leone's land area is designated as protected. In Sierra Leone, 62 percent of the population reside in rural communities while 38 percent reside in urban areas. As noted elsewhere, agriculture, including fisheries and forestry, has traditionally been the most significant sector in the economy of Sierra Leone. Agriculture presents the largest use for land in Sierra Leone as shown in Figure 7-1. However, most of the land is used for subsistence farming. The allocation of land for agriculture historically has been managed under the communal land tenure system and as such, most of Sierra Leone's agricultural activities take place on lands subject to that system.

Figure 7-1 Land use in Sierra Leone



Source: Ministry of Lands

The majority of the population in Sierra Leone depends directly on farming for their livelihoods. Thus, access to secure land is critical for the farming livelihoods of a variety of Sierra Leone's households, communities and groups, as well as for domestic and foreign commercial investments in the agriculture sector. Food security and employment opportunities require an increase in investment flows into land for agricultural development and for growth in other related sectors (FAO 2002).

7.1.1 Communal Land Tenure System

Overview and Description:

The dominant form of land tenure in Sierra Leone is customary under communal ownership. The Western Area, which occupies approximately 5 percent of the total land mass, is the exception to this communal system, and consists of private land, government reserves and other land that has been identified by government for disposal. All land in the Western area that is privately owned and freehold would require a conveyance for any transfer; otherwise there is a statutory declaration that allows people to regularize or claim title to land that they have occupied without encumbrance for a period not less than 12 years covered by the law of adverse possession. However, these free hold rights have been proven to be open to lots of abuses as land holders sometimes sell to multiple suitors. Please refer to Section 7.1.2 below for more details regarding the Western Area.

Approximately 95 percent of Sierra Leone's land – all land outside the Western Area and Bonthe Island – is held in trust for the people of Sierra Leone's various chiefdoms by the Paramount Chiefs, and customary law applies to land acquisition in such areas. Customary law however

varies from region to region and in some cases, districts. For example, customary law for land in the Northern Province and Kono district vests control of land in the Paramount Chief, who has final decision on rights and access to land. In the Southern Province and Kenema and Kailahun districts in the Eastern Province, land ownership rights and access to land are vested in land owning families and where there is 'vacant land' (land that does not have any claim), the Paramount Chief holds it in trust for the chiefdom. In all such communal systems, the disposal of land is subject to conditions such as ancestry, filial bond, payment of a fee or otherwise at the discretion of the chief. In any event, no such land can be passed on by conveyance and any title or other right to such land is unstable unless the owner/user of the land has a primary right to occupy as prescribed by local edicts. The authority to sell interest in land or permit the use of communal land is vested in the Paramount Chief in consultation with the Chiefdom Council, while the authority to sell interest in land or permit the use of family land is vested in the family as a whole or where an individual is designated as family head (Government of Sierra Leone, 2011).

Different interests in land can be held depending on purpose. For example, the right to plant rice could be granted to a family, normally a 'stranger' while the right to plant permanent crops could be granted to another family. Chiefs can grant or obstruct any individual's access to land, especially if they are migrants from outside the chiefdom (known as "strangers") or have abandoned their land. The chief presides over land disputes and determines which claims are valid. This power of the traditional leaders is more critical to livelihoods and economic opportunities where the land is rich in natural resources. Since the end of the war, the paramount chief's control over land matters has continued (or been re-established) and in some areas increased.

There are legal provisions that allow the state to acquire land for specific purposes, for example mineral extraction or local development – this is specifically enshrined in the National Lands Policy, 2005. While in theory Paramount Chiefs have to assent to the acquisition of land by the state, in practice, Paramount Chiefs will hardly ever obstruct state acquisition of land. In fact, traditional ownership of land is only for the surface of the land. The state has absolute ownership of land below 6 feet from the surface. In the extractive industries for example, companies are required to pay surface rents either to chiefdom authorities or land owning families for access to explore or mine concessions (Mines and Minerals Act, 2009).

By statute, foreign persons and foreign legal entities cannot purchase land; but they may acquire leaseholds for periods up to 99 years. An additional restriction on land ownership prohibits the purchase of land by a 'Non-Native'; an ambiguous term typically referring to anyone who is not a member of a provincial tribe such as the Creole. In addition to posing restrictions on land ownership outside the Western Area on 'Non-Natives', customary law imposes restrictions on the ability of women to acquire and maintain tenure to land, since inheritance in the provinces is

largely patrilineal (Dale 2008; Williams 2006). This issue is expanded on in the social and gender assessment conducted in parallel to this Constraint Analysis, and was an issue raised during nationwide consultations in July/August 2013. This restriction on the ability of women to acquire rights to land could have a disproportionate impact on investment at the household level (particularly for small-scale farming), where women often are the primary contributors to agricultural labour.

Key Laws and Institutional Structures for Communal Land Tenure System:

The statutes that govern the dual land tenure system in Sierra Leone were mostly promulgated in 1960. These Laws include the Public Lands Ordinance, Cap 116, the Town and Country Planning Act, Cap 81 and the Unoccupied Lands Act, Cap 117. After independence there have been only two notable land statutes and they include the Non-Citizen Act of 1966 which limited the interest in land in the Western Area that a non-citizen can hold to leasehold of not more than twenty-one year. The Devolution of Estates Act was also enacted in 2007. As there have not been more recent Laws that addresses the land tenure system and coupled with the fact that the old ones have not been reformed in time, Sierra Leone has a large number of old English land statutes which were initially enacted to suit the unique economic and socio political circumstances that prevailed at the time.

Under the customary land tenure structure, the Provinces Land Act, Cap 122 which was enacted in 1927 is considered a key statute as it distinguished between “native” and “non-native” with regards access to land outside Western Area. It is this Law that has been severally cited to be some obstacle for the access and economic use of land. In order to standardize and control the rights which “natives” in the Provinces could grant to “non-natives” The Concession Act, Cap 121 was promulgated in 1931 and it made provisions for long-term leases of ninety-nine years for an area of one thousand acres of land and above, and only for agricultural and mining activities.

One of the key features of the communal land tenure system is that titles to lands in the chiefdom are claimed by the community as a whole. Moreover, membership of such a community as well as member’s right to claim an interest in communal lands are based on ancestry roots from within the community. The rights of ownership of the community are exercised on behalf of the community by the traditional leaders extending from the town or section chiefs right up to the paramount chief working together with other elders. The custodians are vested with powers of management, control and supervision which they exercise together with officials of the local government administration such as the District Office. Notably, customs and traditions and accepted cultural practices, which to some extent go with the backing of the law determines how land is allocated and to whom as there are no laid down written rules. The rights to land held under this arrangement are frequently not documented. There is also no land registry system to

record transactions under customary tenure. This lack of documentary title could be said to be the foremost reason for land tenure insecurity under the customary setting. Also, the absence of documentary title in some ways contribute to holding back the economic use of land as it doesn't facilitate secure and smooth transfer of land from one person or group to another.

Furthermore, at the Chiefdom level the Local Courts, which were recently set up as part of the decentralization efforts, exercise original jurisdiction over land matters involving title to land within the chiefdom with right of appeal. In the case of family lands in the Provinces, the title to the land is vested in the family as a unit and not dependent on any superior body, though any exchange has to be endorsed by the Paramount Chief. So, access to such interest is normally approved by the head family in principle acting in consultation with all the key family members. The authority to manage the disposal of land to non-members of the family is also vested in the head of the family. Although under customary law individual tenure doesn't apply it actually exists in practice especially in urban centres in the Provinces. As a result of urbanization, land is now commercialized

Implications:

The inherent insecurity – both in terms of acquiring access to land and maintaining tenure – that characterizes land acquisition and ownership in the provinces in Sierra Leone (which has about 95% of the land territory of Sierra Leone) could constrain investment. This is particularly acute for foreigners and nationals of Sierra Leone that are not indigenes of a particular province, as well as women. First, determining legitimate land owners within land owning families is difficult. The polygamous and often times, extended family system does not give clear idea of the size of the family and who the genuine family head is. This makes negotiations to reach agreement on surface rents for land leases cumbersome. Second, there is uncertainty of land contracts due to the changing circumstances within chiefdom or land owning family leadership, which leads to potential dispute costs (for which limited data is available, both in the provinces and even the Western Area). Investment in agribusiness for example, requires the cultivation of permanent crops such as sugar, oil palm, etc., which in turn needs long lease terms which cannot be guaranteed in their entirety by parties negotiating the initial contracts. Of indirect relevance to investors, but with potential to create hostilities between communities and investors, is the conflict that distributions of land lease fees generate in communities. Often times, lack of transparency and corruption affect the distribution of land lease revenues leaving some sections of supposed beneficiaries disgruntled, and such disgruntlement lays the foundation for community hostility and threatens the smooth operation of large scale investments, as well as the efficient functioning of land markets even for small-scale investment.

While land for both agribusiness promotion and subsistence farming may not be lacking, as suggested by the relatively high amount of land available at any given time (see Chapter 11.2),

access to land is hindered by customary law practices in the provinces and corruption in the land registration systems in the Western Area. Long term investment in agribusiness is stifled by the complexities in land acquisition. Where investors are willing to deal with these complexities, they are almost always going to deal with ensuing communal hostilities that could be directly or indirectly related to the terms of a prolonged land lease. In the Western Area, where there is a law prohibiting foreign nationals from owning land, anecdotal evidence suggests that Sierra Leoneans are used as middlemen for foreign investors who are either duped of money or will have to deal with counter-claims to land titles mostly contested in courts. Table 7-1 shows the impediments to land acquisition in provincial areas of Sierra Leone.

Table 7-1 Accessing Industrial Land

Indicators	Country Score	IAB Regional Average	IAB Global Average
<i>Strength of lease rights index (0-100)</i>	44.4	76.6	82.1
<i>Strength of ownership rights index (0-100)</i>	N/A	77.3	92.2
<i>Access to land information index (0-100)</i>	26.3	33.9	41.4
<i>Availability of land information index (0-100)</i>	30	58.5	70.6
<i>Time to lease private land (in days)</i>	210	72	61
<i>Time to lease public land (in days)</i>	277	151	140

Source: World Bank, Investment across Borders (2009)

In this respect, it is also important to note that Sierra Leone ranks third worst in Africa on the Property Rights Index subcomponent of the Heritage Foundation’s Economic Freedom Index (2013)

7.1.2 The Western Area

Overview and Description:

In the Western Area, the State asserts full ownership rights over land except in cases where other ownership recognised by the law has been established and as such land is privately owned. Title to land can be acquired through outright purchase, lease, allocation, inheritance, clearing or adverse possession through which land that has been used for a specified period of time can change ownership without paying for it. Private land held under freehold and some state land can be out rightly sold or leased with specified terms.

Key Laws and Institutional Structures:

The law governing State land in Sierra Leone is The State Lands Act, 1960. By this Statute the definition of State Lands is encompassing although it applies only to the Western Area. Title to State lands is vested by the Ministry of Lands, Country Planning and Environment (MLCPE) as the agency that acts on behalf of Government when there is need to acquire or dispose of land. The Act provides that non-citizens cannot hold land on a freehold but only on leaseholds for a maximum period of 21 years and renewable for the same period for whatever purpose, be it residential or commercial. It is the duty of the MLCPE to ensure that all dealings in land whether for the demarcation, acquisition, registration and transfer of land rights are appropriately regularised working with other line Ministries.

All applications for the use of state land are hand by the MLCPE. Investors wanting to acquire land for commercial or industrial purposes apply to the MLCPE submitting a feasibility study(s) of the proposed economic activity and financial evidence of ability to develop the said parcels or plots. Citizens can own private land on a freehold and any transfer of such land is by conveyance or otherwise by statutory declaration for those wishing to regularize or claim title to land that they have occupied without encumbrance for a period not less than 12 years. A system of private and absolute transfer of land is always preferable to any alternative because it accords security of tenure. However, the size of land in Sierra Leon that can be legally subject to such disposal is relatively small.

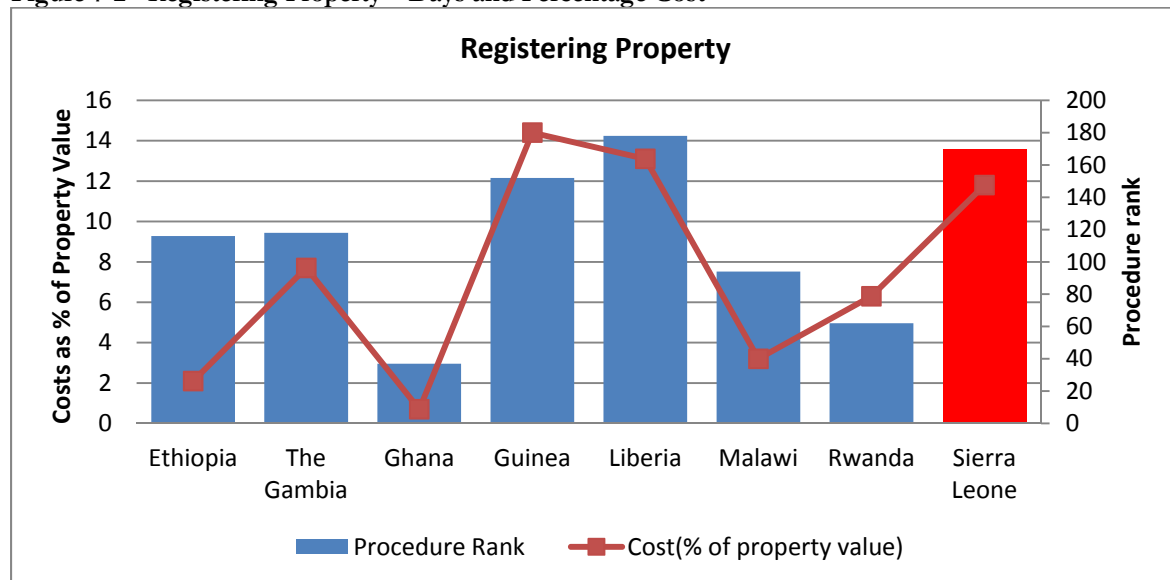
Implications

With a different tenure system in the Western Area, the issue of access to land and security of rights demonstrate themselves differently as observed in the Provinces. Since customary law does not apply in the Western Area, there are no outright restrictions to the free access to land and titles are also relatively secured with some registration and documentation. Despite this current demand outweighs supply and this has led to different claims to land title often leading to disputes and protracted court cases. The system is fraught with lot of inefficiencies although wholesale reforms are underway. In addition, the lack of consistent, equitable and transparent procedures and criteria for the allocation of State lands has meant that legitimate demands of citizens remain unmet. This has frequently led to some form of self-help and land grabbing on a large scale bringing with it the attendant problems of informal settlements, unplanned developments and conflicts among multiple claimants

7.1.3 Land markets and investments

Since the early 1900s, land markets have been active in the coastal regions and gradually emerged in other parts of the Western Area as pressure on land increased. The formal land market is restricted to the Western Area, and therefore only accounts for approximately 5 percent of Sierra Leone’s land area. Accordingly, it is reasonable to assume that land markets for the remaining 95 percent of Sierra Leone, which is governed by customary systems, are less developed (and certainly less transparent). Registration of the sale of land requires seven steps, an average of 67 days, and costs 12.4 percent of the property value. The steps include verifying at the Property Registry that the seller has title, obtaining a survey, filing the survey at the Ministry of Land and Housing, preparing a purchase and sale agreement, obtaining a tax clearance certificate from the National Revenue Authority, and paying the fees and taxes (World Bank 2008; Knox 1998).

Figure 7-2 Registering Property – Days and Percentage Cost



Source: World Enterprise Survey, 2013

Sierra Leone has an active lease market in state and private land. For customary land, lease terms are negotiated between the parties, and must include the approval of the paramount chief for the chiefdom. This is true even when held by individuals or families.

Land prices in Africa are determined by the availability of land and the willingness of the purchaser to pay for the land. One major issue surrounding this market is the fact that there are few data that shows the actual demarcation of land available for different purpose, be it investment, private use, farming or other uses. In Sierra Leone’s case, there are vast parcels of land for different purposes but it is difficult to estimate their value in monetary terms because of the unavailability of land banks and an updated database, and because there is only a limited land

market for the vast majority of land, which falls under the customary system. Generally the demand for land determines the price because of the competition for land, especially when it is prime land. Also, due to the grabbing of and squatting on land that could lead to acquisition of land through the law of adverse possession, it is difficult to quantify the extent of the problem of land acquisition. Land prices are not fixed by the state but determined by the market.

For agribusiness development, investors normally negotiate with the state and then pay compensation to land owners for economic loss caused by their acquisition of land and where acquisition by an agribusiness company requires involuntary resettlement of people, compensation includes reconstruction of homes and compensation for economic loss. This process itself can be considered a form of circumvention, as investors bypass unpredictable, opaque and non-existent land markets to acquire rights to land. Also, social factors such as nationality and or ethnicity determine prices for land, particularly for long leases.

From this analysis, it appears that the main issue with the land tenure system is lack of secure ownership and limited transferability of land, coupled with unpredictable and non-uniform customary systems, which collectively increase the time and costs associated with accessing land usage rights, and potentially leading to costly disputes and foregone investment. Since the cultural and traditional laws that govern the system do not accord for legal and binding transfers, it is difficult to obtain the full value of land as a factor of production in the economy and operate as an economic asset for securitization or collateralization in the search for credit. A further difficulty is the fact that there are no extant laws to support mortgaging of property in Sierra Leone. This results in additional costs of credit due to the laborious process necessary before taking a charge or lien on property. This is common in the Western Area where land can be assigned by conveyance. Since there are no procedures for taking a charge on property, any such property that is offered as security for a loan has to be conveyed over to the bank until the loan is fully amortized and then the bank conveys the property back to the owner. This process raises issues of dispossessing heirs or designates to landed property without recourse or otherwise adds to the cost of credit by high legal fees for the execution of the dual conveyance. In addition, the lack of transparency involved in accessing land under the customary system increases uncertainty, thereby increasing the cost of obtaining and/or retaining access to land, which in turn dampens investment and productivity even for small-scale farmers and households.

7.1.4 Reform

In recognition of the challenges in this sector numerous ad hoc and short term measures are being undertaken by the government to improve the effectiveness of the existing land administration system, particularly at the central government level in the Ministry of Lands, Country Planning and the Environment. In the Western Area and the Provinces various pilot efforts are being discussed in order to improve the management of land and resolve the diverse demand for land, including the emerging land disputes. Land use and urban planning systems are

also being examined. Also, there is a pending new land policy that has been drafted and consultations are being currently held. The aim of the new policy is to move away from the current chaotic situation and provide more clarity and efficiency for social and public demands. Also, the policy aims to support reforms in the land sub-sector in order to harmonize the current dual land tenure system. Also, it aims to strengthen the security of tenure and protection of land rights to all landholders, regardless of their form of land tenure

An initial policy was drafted in 2005 but its implementation and operationalization was not successful as it lacked public support, deemed not to have been participatory enough in its preparation. In the preparation of this new land policy there has been widespread involvement of all stakeholders in all 149 Chiefdoms in the provinces and the Western Area rural and urban districts through extensive consultations to both identify the issues and proffer recommendations for addressing them. The new policy will be reviewed once in at least every five years and necessary amendments made to take into consideration dynamic conditions. It is expected that once the new policy is operationalized it will facilitate access to land for investment for citizens and non-citizens alike and enable the land sector to contribute to overall welfare and the eradication of widespread poverty.

7.1.5 HRV Test for Land

Due to the extremely limited availability of quantitative data on land tenure and transactions in Sierra Leone and comparator countries, it is difficult to conduct the four tests in any rigorous manner. Instead, we will use the HRV tests as lenses to examine the evidence available, including qualitative or anecdotal evidence.

From the limited quantitative data available, it appears that the land tenure system in Sierra Leone has restricted investments. The majority of 40% of agricultural land for production is found outside the capital. The restriction to land ownership both by foreign nationals and “non-indigenes” (as well as, in many cases, women) inhibits domestic and, particularly, foreign investments, because the majority of large investments are foreign owned. Table 7-1 also shows that Sierra Leone is ranked low in terms of ability to lease private and public land to foreigners and “non-indigenes”. Figure 7-2 also alludes to the fact that when businesses or individuals overcome the challenges of accessing land in the Western Area, they are further faced with laborious processes of registering such lands. These associated costs are higher than in most comparator countries. To the extent that these processes are even less transparent (if not non-existent) and subject to varying customary systems in the Provinces, it is reasonable to assume that such challenges/costs are even more constraining to investment in these areas.

In regard to the shadow price test, anecdotal evidence indicates that the shadow price of land is high. Sierra Leoneans tend to pay for land more than once because often times the seller has no legal title over the property and that can be picked up when the buyer tries to sort the title at the registrar's office. This is evident in the example below of a dispute that transpired between different parties for a particular plot:

“D consulted his Solicitor to prepare a Deed of Conveyance in respect of a piece of land he intended to purchase from E, who was described as an old illiterate man of about 80 years. E's nephew, F, who was acting as his agent in the negotiations, claimed that E had been on the land for over 50 years, but that he had no title deeds. F however produced a signed survey plan prepared in 2001 and ‘purportedly’ signed by a licensed surveyor and countersigned by the Director of Surveys and Lands. F explained that a Statutory Declaration establishing E's possessory title to the land had not been executed because of lack of funds. The land is in Grafton Village, which is in the Far East end of Freetown in the Western Area. Upon further investigations by the Solicitor, it was discovered that the 2001 survey plan was a forgery and that the plan was registered in the Surveys and Lands Department in the name of a different owner and for a piece of land situated at Pipe Line, off Wilkinson Road in the west end of Freetown. “

(Scoping Study: Land and Pro-Poor Change in Sierra Leone)

This case study highlights some of the challenges of the transactions costs associated with buying land in Sierra Leone and, with the broader discussion above, attempts to illustrate the high shadow price associated with land tenure through a focus on the costs and complexities of accessing land.

However, the costs associated with disputes and/or the cost of foregone investment because of uncertain land rights might also provide evidence of a high shadow price. While there is very limited data regarding such dispute costs in Sierra Leone, it is clear that land disputes are quite common, typically relating to: lack of consent to a land transfer; fraudulent documents; multiple interests asserted for the same property; erroneous surveys; exercise of authority over land by the paramount chief; and intra-family disputes over rights to land. By some estimates, land disputes account for 70% of the higher court dockets in the Western Area. SAID (August 2010). Accordingly, it is reasonable to assume that costs related to such disputes would further increase the shadow price of associated land tenure and property rights in Sierra Leone.

For the growth test, existing literature shows mixed effects of land tenure on growth. Udry (2011) notes, “Even when it is possible to measure tenure security and thus construct a correlation between this and agricultural productivity, it remains a challenge to understand the causal chain that might link land tenure regimes to investment and productivity. Causality could run in both directions: certain investments might themselves change the rights of a cultivator

over her land, thus inducing a correlation between tenure security and investment or productivity.” Araujo (2006) paradoxically finds that land tenure *insecurity* has a negative impact on land prices and a positive impact on growth.

Anecdotally, the growth test in Sierra Leone is evident in that when companies like ADDAX have access to land, as they do in the outskirts of the Provincial town of Makeni, they can put it into productive use. ADDAX is using the land to grow sugarcane for bio fuels.

For the circumvention test, investors are bypassing the problem by having individuals represent them as proxy in acquiring land because foreigners cannot own land outright in Sierra Leone. This scenario applies more especially to individual foreign residents of the country who wish to acquire lands for personal holdings or for small scale business purposes. By a similar token, some foreign investors look to government to assist them in acquiring land in the Provinces as a means of circumventing the stringent laws with regard to land.

The non-reliance test is experienced by the small firms rather than the big firms. The big firms can afford to pay for what they want. For instance SCOFIN, an agricultural company growing oil palms, paid a substantial amount for smallholders’ farms in the Eastern part of the country through the government of Sierra Leone. They bought people’s private farms at a high price and they ended up employing most of the employable population in that area.

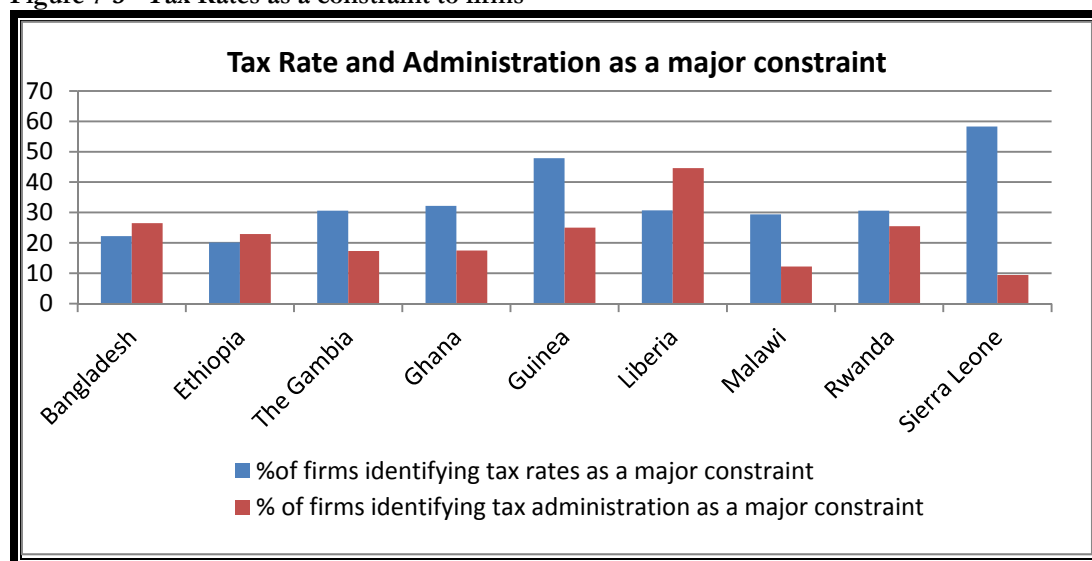
Without any quantitative data on the demand for land or its associated costs, it is impossible to say with certainty that land tenure is or is not a binding constraint to growth in Sierra Leone. The dearth of quantitative data prevents us from benchmarking the land tenure system with land tenure regimes in comparator countries and conducting the four tests of the HRV methodology. However, anecdotal evidence points to land tenure as a serious issue in Sierra Leone. With additional data, this evidence could point to land tenure as a possibly binding constraint. In this context, it is important to note that while the nationwide consultations in July/August 2013 consistently highlighted access to land as an important issue (typically in the context of the policy and institutional ineffectiveness syndrome), participants also consistently ranked this possible constraint as less important or less binding than other constraints identified by this Constraints Analysis (see Annex I). As such, land tenure and property rights are designated in this report as an issue that is likely to emerge as a serious constraint in the medium term if decisive actions are not taken by the Government and stakeholders.

7.2 Taxes

A core function of the tax system is to generate sufficient revenue to meet the expanding public sector requirements of the country. A poor tax structure, weak framework of administration and narrow tax base contribute to a serious impediment to growth. This is because invariably, tax revenue drives investment in public services that underpin the enabling environment, necessary

to attract investment and credit for other sectors to experience accelerated growth. Where the tax base is too narrow there is a tendency for over taxing the few firms in the formal sector and thereby reduce the returns on private investment.

Figure 7-3 Tax Rates as a constraint to firms



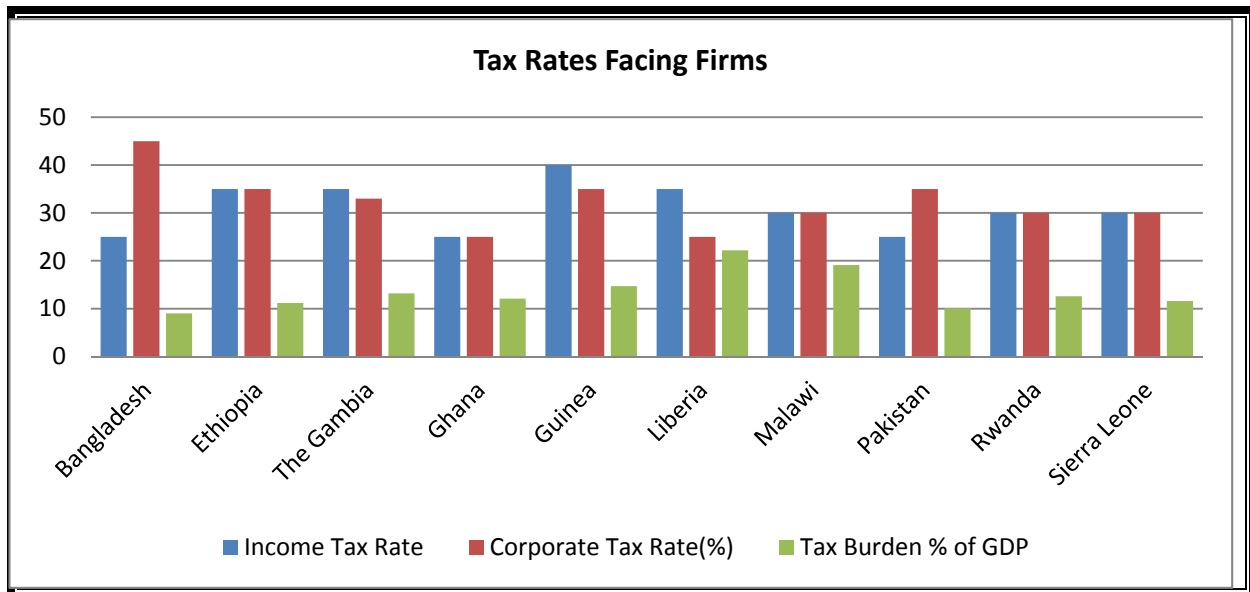
Source: World Bank Enterprise Survey, 2009

Data from the World Bank Enterprise Survey 2009 (Figure 7-3) shows that firms identify tax rates in Sierra Leone as problematic. Almost 60 percent of firms in Sierra Leone see the high tax rates as a major constraint to growth. This proportion is much higher than that for all the comparator countries. According to the World Bank Enterprise Survey the proportion of small firms (with 5-19 employees) that started operations without formal registration was about 14 percent⁸. None of the medium or large firms started operations without formal registration. Also, firms seek ways to employ workers without making them full time employees to which they would not carry payroll tax obligations.

Moreover, it can be seen from Figure 7-4 that income tax rates faced by firms are about the same for Sierra Leone, Malawi and Rwanda (at about 30 percent). Liberia, Guinea, The Gambia and Ethiopia seem to be higher (above 30 percent), but the remaining countries have lower rates. Also, for corporate tax Sierra Leone, Rwanda and Malawi are about the same. Pakistan, Guinea, The Gambia, Ethiopia and Bangladesh are relatively higher, and Ghana and Liberia are inversely lower. Finally, the tax burden of Sierra Leone as a percentage of GDP is relatively low and is similar to that of Ghana, Pakistan and Ethiopia.

⁸ This is undoubtedly a reflection of the bias in the enterprise survey in favour of formal firms. Overall only 13.3 percent of the firms in the enterprise survey said they started without formal registration.

Figure 7-4 Component Tax Rates



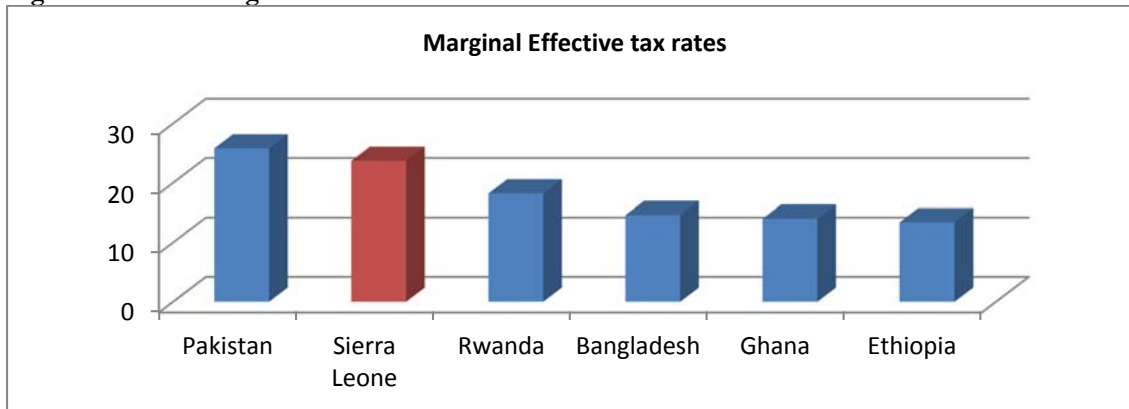
Source: World Bank Enterprise Survey, 2009

Note: Income tax rate is the rate applicable to the highest tier. The corporate tax rate is the rate applicable to corporate profits.

7.2.1 Marginal Effective tax rate

We show in Figure 7-5, the marginal effective tax rates for Sierra Leone and her comparators. It is vivid from the figure that Sierra Leone and Pakistan have the highest tax burdens as compared to the other countries. The tax burden is lower in the other comparator countries with about 12.5 cents of every \$1 earned. However, for Sierra Leone and Pakistan, the case is different as the burden is about 25 cents for every \$1 earned.

Figure 7-5 Marginal Effective Tax Rates



Source: Corporate Tax Competiveness rankings

Table 7-2 Profit tax for comparator countries

Country	Profit tax (% of commercial profits)
<i>Bangladesh</i>	25.7
<i>Ethiopia</i>	27
<i>Gambia, The</i>	6.1
<i>Ghana</i>	18.5
<i>Guinea</i>	23.5
<i>Liberia</i>	18.3
<i>Malawi</i>	23.6
<i>Pakistan</i>	17.9
<i>Rwanda</i>	21.2
Sierra Leone	17.6

Source: World Development Indicators, 2012

7.2.2 HRV Test for Tax

The tax rate that pertains in an economy could well be an indication of the ‘friendliness’ of the economy to business. A high shadow price for taxes is reflected in high taxes and poor tax administration. Examining three different types of taxes facing firms in

Figure 7-5, we see that the income tax rates and corporate tax rates facing firms in Sierra Leone are both comparable with other countries. Similarly, the tax burden as a percentage of GDP is in line with the comparator countries average. In addition, the percentage of profit tax as a percentage of commercial profits in Sierra Leone as presented in

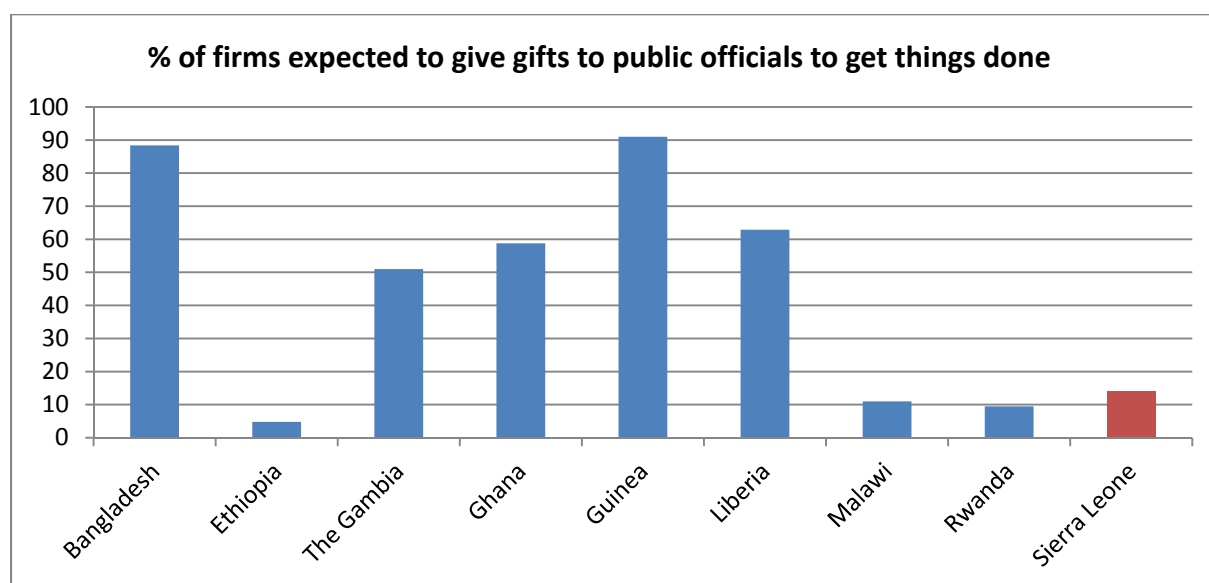
Table 7-2 is 17.6 percent. This is the second highest, only above The Gambia, but significantly below neighbouring Guinea. The profit tax is the amount of taxes on profits paid by businesses. The percentage of firms identifying tax administration as a major constraint is lowest in Sierra Leone when benchmarked against comparators as seen in Figure 7-4. From the evidence, therefore, we will argue that the shadow price on taxation is not high in Sierra Leone as the transactions cost to business to meet tax obligations is not high. Taxation does not present an appropriation concern to private agents.

On the growth dividend test, there is no data that appears to suggest that there is a causal relationship of tax rates to private investment and growth. For the circumvention test taxation will be an impediment to private investment if there is under-reporting of income by firms which could lead to the economy being highly informal. The World Bank estimates the size of the informal sector in Sierra Leone at 45 percent of GDP. It is also worthy to note that the level of informality could be as a result of other factors, for example labour regulations, and not necessarily to bypass taxation.

7.3 Corruption

Corruption has a negative impact on business environment. The World Bank's Enterprise Survey 2009 stated that about 14 percent of managers report that their companies are expected to give gifts to public officials 'to get things done'; as shown in Figure 7-6. Such bribes to different public institutions have a negative impact on the country's business environment by adding to the operating costs of enterprises. Furthermore, corruption imposes a cost to firms especially when dealing with bureaucracy. In that same enterprise survey; 41 percent of firms consider corruption as a major constraint. Although this percentage is significantly lower than in Guinea and Liberia, it is comparatively higher than in Malawi, as seen in Figure 7-6.

Figure 7-6 % of firms expected to give gifts to public officials to get things done

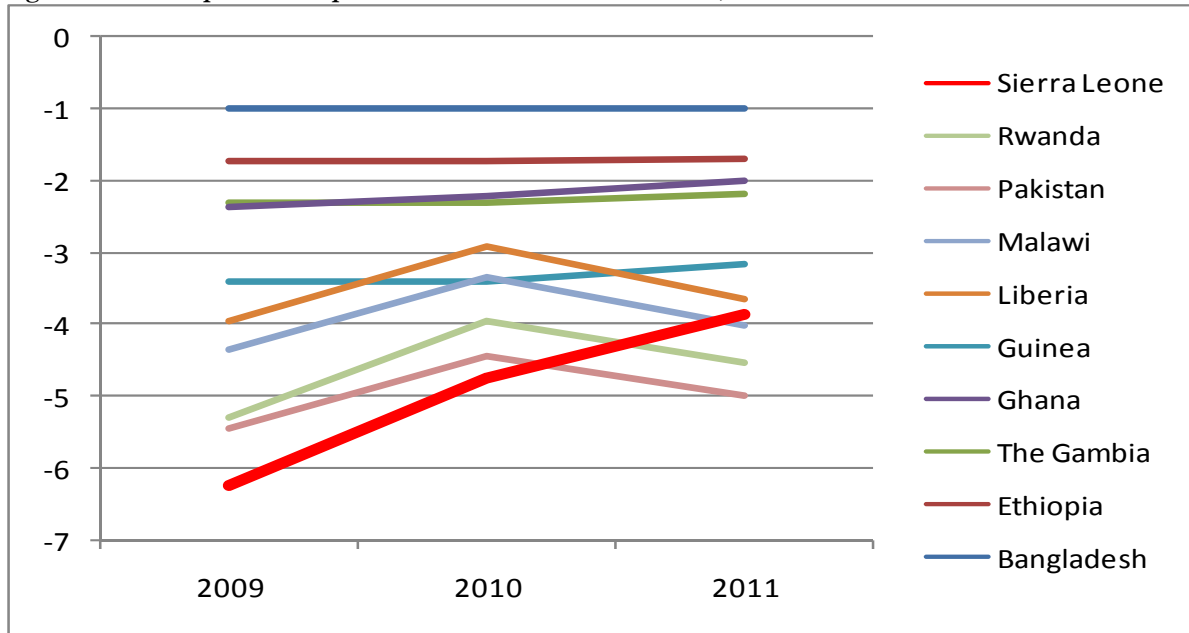


Source: World Bank Enterprise Survey, 2009

Over the past years the country has laid more emphasis in combating corruption and given the Anti-Corruption Commission increased independence. After the amendment of the anti-corruption act, the commission have been given full powers to investigate and prosecute individuals and government agencies that are found culpable in flouting the laws. One of the most cited indicators on corruption is provided by Transparency International. As seen in Figure 7-8, Sierra Leone has been making noticeable improvements in the fight against corruption as indicated in higher recorded ranking by both Transparency International and the World Bank. Transparency International's Corruption Perception Index which measures the perceived levels of public sector corruption in countries worldwide ranked Sierra Leone 123 out of 174 nations in 2012. This was a move from a rank of 134 in 2011. Countries are scored from 0 (highly corrupt) to 100 (very clean). Although the score in itself is not entirely good, it is an improvement from

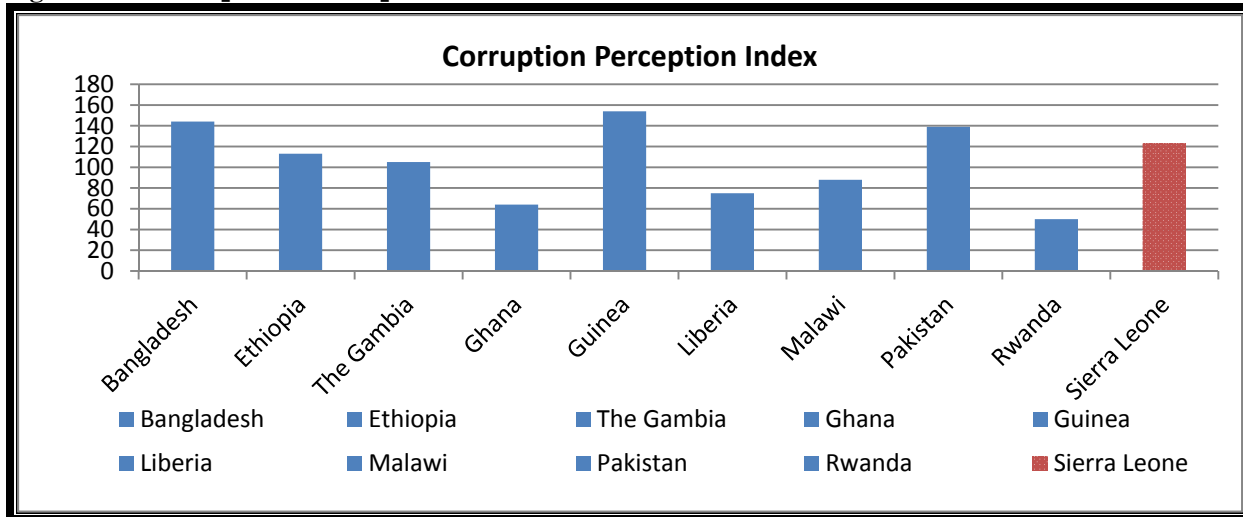
previous years. This improvement in trends for Sierra Leone is confirmed by the World Governance Indicators corruption index as depicted in Figure 7-7.

Figure 7-7 Corruption Perception Index for Selected Countries, 2009-2011



Source: World Governance Indicators 2012

Figure 7-8 Corruption Perception Index Rank



Source: Transparency International, 2012

As a result of some of the above strides and initiatives, Sierra Leone has made significant improvement in the fight against corruption and promoting good governance. The 2012 Mo Ibrahim Index of African Governance ranks the status of governance in Sierra Leone as 30th among 52 African countries.

To get a better picture of the effort of the government in fighting corruption in Sierra Leone, we show in Table 7-3 corruption cases investigated and prosecuted and the revenue recovered from such cases.

Table 7-3 Corruption Cases – 2010 - 2012

Investigations , Intelligence and Prosecution Case Trend (2010 -2012)			
Outcome	2010	2011	2012
Charge to court	5	11	10
Closed	22	39	48
KIV	3	11	11
Referred	0	5	3
Cautioned	1	5	5
Total Cases Completed	31	71	77
Convictions	8	7	22
Recovery	Le 1,729,751,149	Le 1,372,235,215	Le 2,725,633,399

Source: Anti-Corruption Commission, Sierra Leone, 2013

From the table above, it is vivid that the fight against corruption is improving in Sierra Leone. Total cases completed show an increase of about 148 percent from 2010 to 2012 while there was an increase of about 57.5 percent of cases convicted during the same period. To show the effectiveness of the recovery system, the amount recovered showed an increase of about 175 percent within the same period. To put the efficiency of the recovery system into perspective, the amount recovered expressed as a percentage of total Government revenues for the period under review were 0.0023, 0.00136 and 0.00186 percent respectively. Although these amount are minimal, they do signify that progress is being made in the fight against corruption.

In conclusion, the evidence of corruption in Sierra Leone shows marked improvements over the years. This is reflected in both Transparency International’s Corruption Perception Index and the World Governance Indicators which show a significant improvement in the control of corruption in Sierra Leone over the past decade. Based on this trend and the low percentage of firms that report giving gifts to public officials, we argue that corruption is not a binding constraint to private investments and growth in Sierra Leone.

7.4 Regulatory Quality

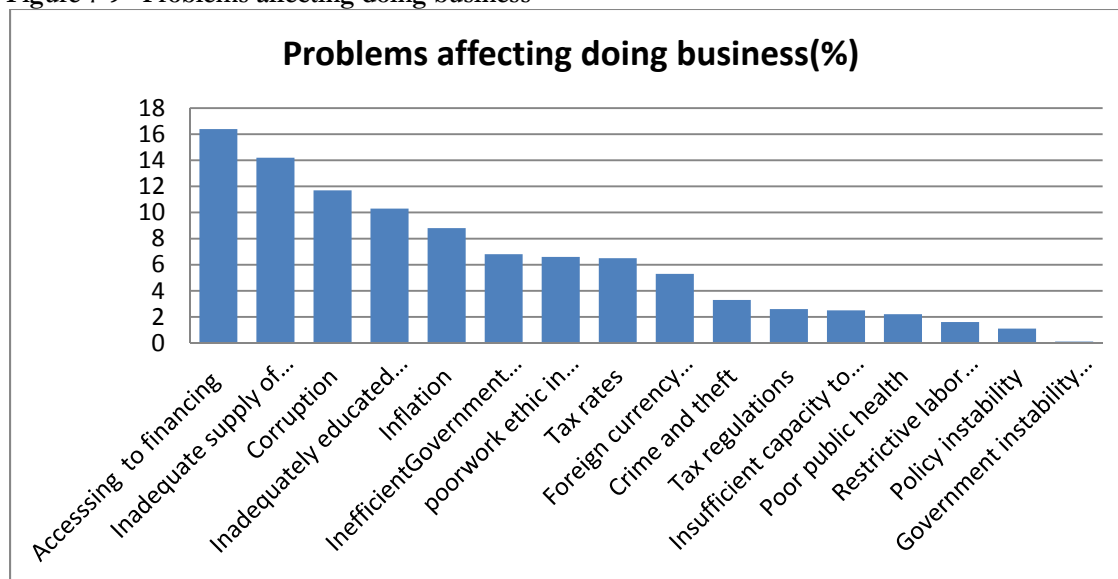
A good regulatory environment is essential for economic growth and poverty reduction. An investor will be reluctant to invest in an economy where the paperwork involved is cumbersome and adds significantly to their cost of capital. It has been argued that improving regulatory quality and regulatory reform are among the best ways in promoting investment, trade and

growth (OECD 2008). Private investment requires that countries manage successive old regulations as well as the flow of new regulations to sustain it. Making regulatory systems more efficient is challenging and can include cutting bureaucracy for business, making policy more evidence-based, promoting the functioning of markets and improving the public's understanding of the law. This fact is illustrated in the 'policy and institutional ineffectiveness' syndrome discussion in Chapter 12.

With an organized and long-standing programme of regulatory reform, Sierra Leone has found it necessary to establish an explicit policy agenda on reform at the highest levels of government which have resulted in noticeable improvements in the business environment. Conditions for doing business in Sierra Leone are perceived as favourable in the country, as a result of deliberate efforts by the Government. Sierra Leone was included for the first time in the Global Competitiveness Report 2012-2013 and ranked reasonably well in some indicators. Particularly, the highest rank was on the institutions pillar where the country's strength on investor protection where ranked 29th out of 144 nations. Also, Sierra Leone was ranked an impressive 35th on burden of government regulation, although the overall rank on the institutions pillar was 95th. It must be noted however that respondents to the survey ranked access to finance, inadequate supply of infrastructure, corruption and inadequately educated workforce comparatively as the most problematic factors for doing business.

According to the World Bank doing business survey Sierra Leone is one of Africa's most active reformers of laws and business regulation, eight places up between 2012 and 2013 (World Bank 2013). Doing Business provides an aggregate ranking on the ease of doing business based on indicators that measure and benchmark regulations applying to domestic small to medium-size businesses throughout their life cycle. The country is ranked relatively well on the ease of doing business as shown in Figure 7-9. The Doing Business (DB) reform efforts began in 2005 with funding provided by the International Finance Corporation (IFC) to help create a better environment for the private sector to develop. Since then the country has recorded improved and upward movements. In a bid to maintain this momentum, the government in 2011 embarked on aggressive DB reforms aimed at improving the country's rankings and its investment climate. During this period, six reforms were implemented in six months and were fondly referred to as "6 in 6".

Figure 7-9 Problems affecting doing business

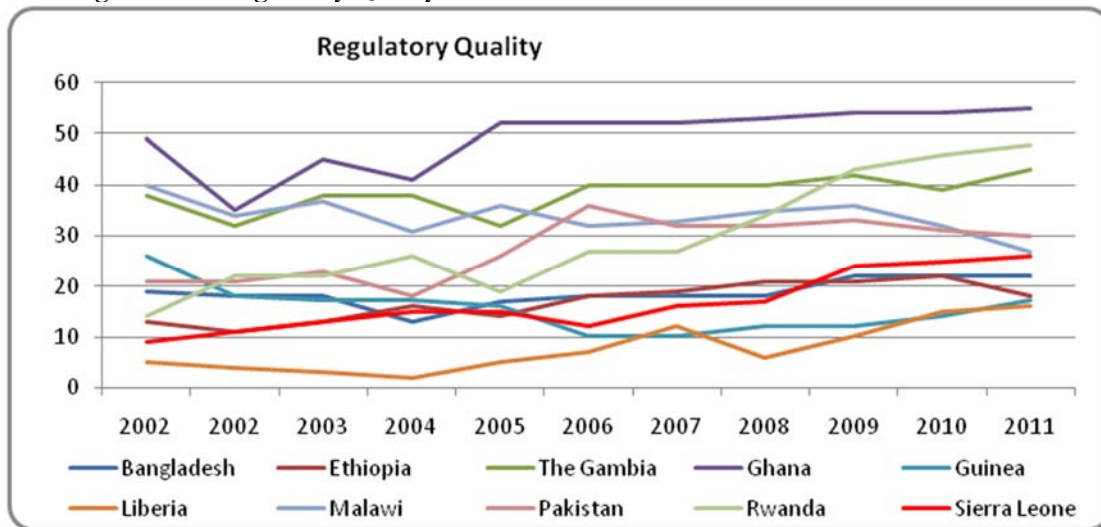


Global Competitiveness Report, 2012

In addition, the report has recognized improvements in the areas of regulation out of the reforms: e.g. getting credit, trading across borders, enforcing contracts, and closing a business. Sierra Leone improved its credit information system by enacting a new law where commercial banks can obtain information from the Central Bank about the credit history of any potential customer before granting a loan to such customer. Also, it made trading across borders faster by implementing the Automated System for Customs Data (ASYCUDA++). The ASYCUDA++ makes clearing of goods from the ports faster, more efficient and also minimizes revenue leakages.

Moreover, Sierra Leone has made progress in its regulatory quality as measured by the World Governance Indicator. This index reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. As seen in Figure 7-10, Sierra Leone has been moving on an upward trajectory since 2006 after a brief slip and is ranked above its closest neighbours, Liberia and Guinea, but below other comparators. This indicator of regulatory quality has provided information on regulatory management practices, that is, on how countries prepare new rules and how they reform existing rules.

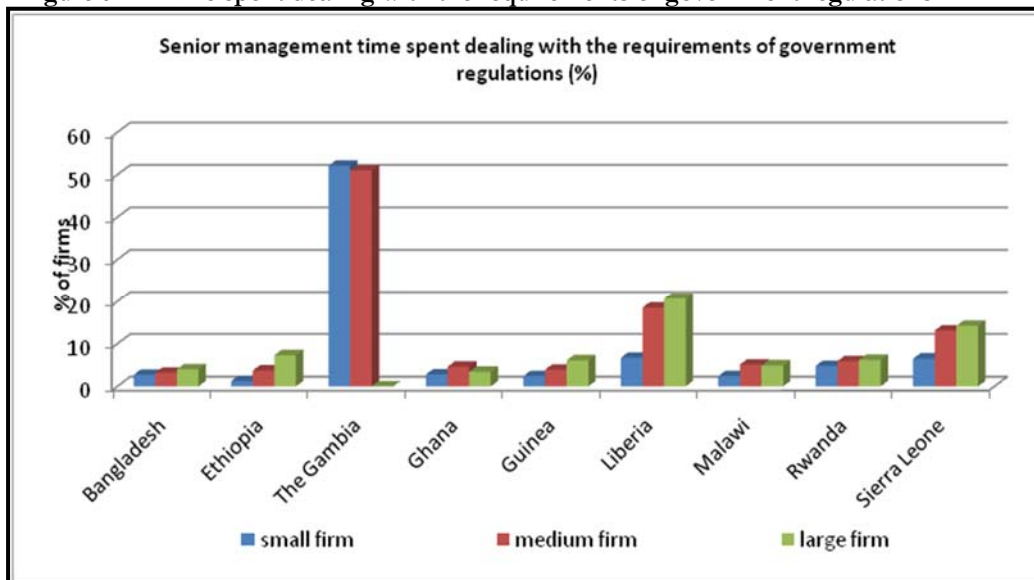
Figure 7-10 Regulatory Quality



Source: World Governance Indicators 2012

Based on all these information, it is evident that Sierra Leone has an improving regulatory environment. Data from World governance indicators also revealed that; senior managers in large firms in Sierra Leone, Guinea and Liberia spend respectively about 12%, 7% and 19%, with regard to dealing with the requirements of government regulations. This implies there are still high costs associated with the hurdles of government regulations.

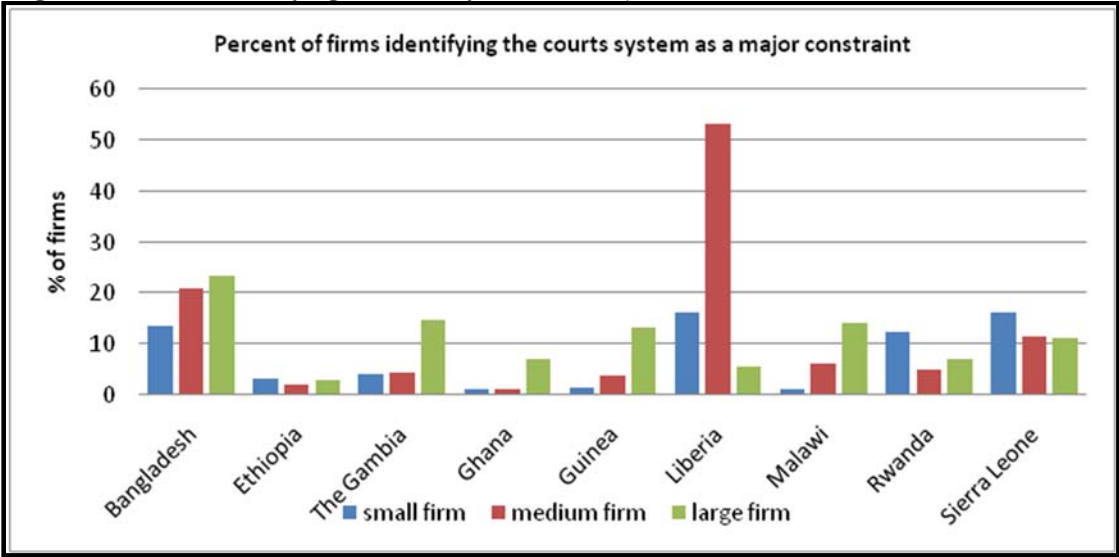
Figure 7-11 Time spent dealing with the requirements of government regulations



Source: World Governance Indicators 2012

Sierra Leone, Rwanda, Malawi and The Gambia have almost the same percentage for firms identifying the court system as a major constraint. For Sierra Leone in particular, small firms see the court processes as cumbersome and therefore an obstacle to their operations. Anecdotal evidence gathered from talking to a few micro enterprises, suggests that their dislike for the court system is because of the time involved in prosecuting cases. Leaving one’s business to attend endless court cases involves both time and money. In Sierra Leone, in spite of the fact that Government has established the commercial court to fast track commercial cases, there is still the issue of costs for small enterprises.

Figure 7-12 Firms identifying the court system as a major constraint



Source: World Governance Indicators 2012

Considering the fact that Sierra Leone has been steadily improving its performance in regulatory indices since she started her reform drive in 2005, it seems that regulatory quality does not present a binding constraint to private investment and economic growth in Sierra Leone.

7.5 Policy and Institutional Effectiveness

Sierra Leone has a large informal sector, estimated at 45% of GDP, which imposes high economic and social costs. According to a 2006 World Bank report, about 86% of businesses believe that the high cost and burden of licenses is the most important reason for informality, and about 75% consider these reasons to be tax burden and administration and lack of information (World Bank 2006). While taxes could be the cause of informality, the root cause is more likely policy and institutional ineffectiveness. After all, if the government had better capacity for tax collection and business registration, it would be more difficult for enterprises to remain informal. Many businesses also do not have or understand all the necessary information to formalize, particularly since most of those who operate in the informal sector have low levels of education.

The large informal sector is only one symptom of this problem. It seems that many domestic firms in Sierra Leone are limited by a host of microeconomic risks, but many of them can be traced back to policy and institutional effectiveness, which we define in this context as “the ability of policies and government institutions to protect returns to investment and promote the efficient provision of inputs to production.” Because these micro risks (such as property rights, contract enforcement, tax policy, sector regulations, etc.) are often due to the inefficient policies or inability to implement policies, it can be difficult to get hard data on them. For instance, the shadow price of land transactions is high in rural areas because of the difficulties in obtaining land from paramount chiefs. Many businesses, especially informal ones, cannot obtain financing because banks fear default due to a lack of systems that track borrower information (which the new credit bureau act may address) or enable loans to be secured with collateral. Even if they could, the cost of domestic finance is high because government borrowing has driven up interest rates, leading banks to buy bonds instead of the perceived riskier lending activities.

In many cases, government policies are sound, but there are insufficient resources to implement them properly. For instance, illegal fishing by foreign entities occurs in Sierra Leone’s waters, and the government does not have the means to effectively police the waters. Tax revenues remain low due to inefficiencies in collection, which leads to further borrowing. These issues even contribute to the other identified constraints. The power grid is in poor condition partially because the National Power Authority sustains large financial losses because of collection inefficiencies, among other reasons. Similarly, the Guma Valley Water Company (GVWC), which supplies water to Freetown, sustains large losses due to underpricing of water, which hampers reinvestment in the water system. According to Pushak and Foster (2011), the fuel levy is not large enough to cover road maintenance. Although improvements are being made in some areas, these issues suggest there is a policy and institutional dimension underlying many of the constraints to growth, which must be addressed to loosen those constraints. This will be discussed in further detail in Chapter 12.

8 Market Failures in Innovation

Innovation and technological change is generally seen today as one of the key driving forces of economic growth in industrialized countries (Centre for Empirical Macroeconomics, 2005). Technological innovation is critical for Sierra Leone's growth prospect. The ability to innovate can give a significant boost to economic activities in any country. In a country such as Sierra Leone, innovation with respect to agriculture, mining and business can change the face of the economy altogether.

We know from the HRV (2005) model that low private returns to capital can be as a result of either market failures and/or government failures. However, market failures could result from lack of entrepreneurial effort, self-discovery and/or coordination failures. Coordination failures⁹ can result from infrastructure inputs, such as energy, transport and water which provide a link between producers and consumers. It can also result from information failures from marketing, research and product quality development. Although such failures affect the economy as a whole, they are particularly severe on the poor as they cannot afford the fixed costs associated with by-passing these coordination failures.

This section provides an analysis of market failures in Sierra Leone with a view to understanding the extent to which this potential constraint is hampering private sector investments and growth. We do this by examining Sierra Leone's performance in innovation relative to its overall investment and growth.

8.1 Export Basket Size and Composition

There is a widely shared view among politicians and policymakers on the importance of increasing export from Sierra Leone. This follows the recognition of the potential role of export as an engine of growth for a country with a small domestic market such as Sierra Leone. The economic conditions facing Sierra Leone's export sector are challenging. According to 2011 data from the Bank of Sierra Leone, the balance of payments registers a significant external trade deficit. The net trade index (export - import)/ (export + import) in 2011 was equal to - 48 percent. The three most exported products were diamonds (21.7% of total export), bauxite (6.5%) and cocoa beans, whole or broken, raw or roasted (7.4%) (BSL Bulletin, 2011). Table 8-1 shows the composition of exports of Sierra Leone for the period 2009 – 2011.

⁹Coordination failures can result from inadequate infrastructural inputs such as power, roads, water & sanitation, etc., and have been handled in a previous chapter of this work.

Table 8-1 Major Export Products from Sierra Leone (US\$ '000), 2002 - 2011

Products	2002	2005	2008	2009	2010	2011
Mineral Export	41,732.2	142,465.8	170,211.2	138,653.5	200,649.6	240,240.3
<i>Diamonds</i>	41,732.2	142,202.3	98,803.7	78,374.0	113,514.7	129,766.2
<i>Bauxite</i>	-	-	28,063.1	18,678.0	31,061.1	38,998.6
<i>Rutile</i>	-	-	36,658.7	35,920.4	40,567.2	34,436.6
<i>Gold</i>	-	263.5	4,116.4	4,764.2	9,295.8	7,280.0
<i>Ilmenite</i>	-	-	2,569.3	916.9	2,653.1	4,441.7
<i>Iron Ore</i>	-	-	-	-	-	14,863.0
<i>Zircon</i>	-	-	-	-	3,557.7	10,454.2
Agricultural Export	1,539.2	6,186.7	18,515.1	48,473.8	38,900.0	46,779.5
<i>Coffee</i>	272.1	873.8	1,487.6	13,123.6	1,698.2	2,000.8
<i>Cocoa</i>	1,218.7	5,236.7	14,982.0	20,544.6	37,051.2	44,022.0
<i>Piassava</i>	26.1	-	-	4.6	-	10.1
<i>Fish and Shrimps</i>	22.3	76.2	2,045.5	14,801.0	150.6	746.6
Others*	3,090.2	3,168.6	12,185.3	19,973.1	78,231.1	28,997.2
TOTAL EXPORTS	46,361.6	151,821.1	200,911.6	207,100.4	317,780.7	316,017.0

Source: Bank of Sierra Leone

* It includes re-exports and goods procured at the port

Total exports from Sierra Leone are increasingly driven by key export products such as diamonds, cocoa and bauxite. From 2002 after the end of the civil conflict, exports have increased considerably. From 2002 to 2011, exports grew by almost 600 percent as a result of the growth in every exported product and the exports of new products that were non-existent in 2002. From 2010 to 2011, total exports decreased by about 0.05 percent as a result of decreases in the export of rutile (about 17.8%) and re-exports (about 150%). During the same period, there was an increase of 19.7 percent and 20.2 percent of mineral and agricultural exports respectively. Agricultural exports fell by over 20 percent during the period 2009 – 2010 while within the same period, mineral products increased by over 40 percent. The fall in agricultural export was as a

result of the fall of over 650 percent in the exports of coffee. This sharp fall can be attributed to the decline in the production of coffee locally as well as a fall in the prices of coffee on the world market. Even though there was an increase in mineral export for the period 2010 – 2011, this increase was below expectation. Lower than expected earnings from the mining sub-sector may be partly attributed to some administrative problems with the mining companies, as well as to unfavourable domestic environment.

We also note from Table 8-2 that agricultural exports increased from about \$1.5 million total exports to over \$45 million total exports for the period under review. This increase was triggered by the growth of all subsectors especially cocoa. Cocoa's contribution to total agricultural exports has grown from 75 percent in 2002 to about 95 percent in 2011. This explains the importance of the product to agricultural exports. Earnings from the export of “fish and shrimps” decreased significantly from US\$14.80 million in 2009 to US\$0.15 million in 2010 due to the EU restrictions on the imports of fish from Sierra Leone. However, in 2011, there was an increase from US\$0.15 million to US \$0.746 million.

It is evident from Table 8-2 that Sierra Leone is dependent on the mining sector and this is reflected by its high contribution to GDP (20%) and registered exports (90%). The sector has seen a significant recovery since the end of the war in terms of both operations and output. Mining accounted for almost half of export revenues in 2011, comprising \$130 million in diamonds, \$34.4 million for Rutile and \$39 million for bauxite (Ministry of Mineral Resources – GoSL).

Figure 8-1 shows the average annual growth in export for the period 2006 – 2010 for the comparator countries. It is vivid from that export growth in Niger and Liberia has been negative over the years. Although export growth is positive for Sierra Leone, it is below the likes of Gambia, Guinea and Malawi. The government is putting mechanisms in place to increase exports.

Table 8-2 Imports 2002 – 2011

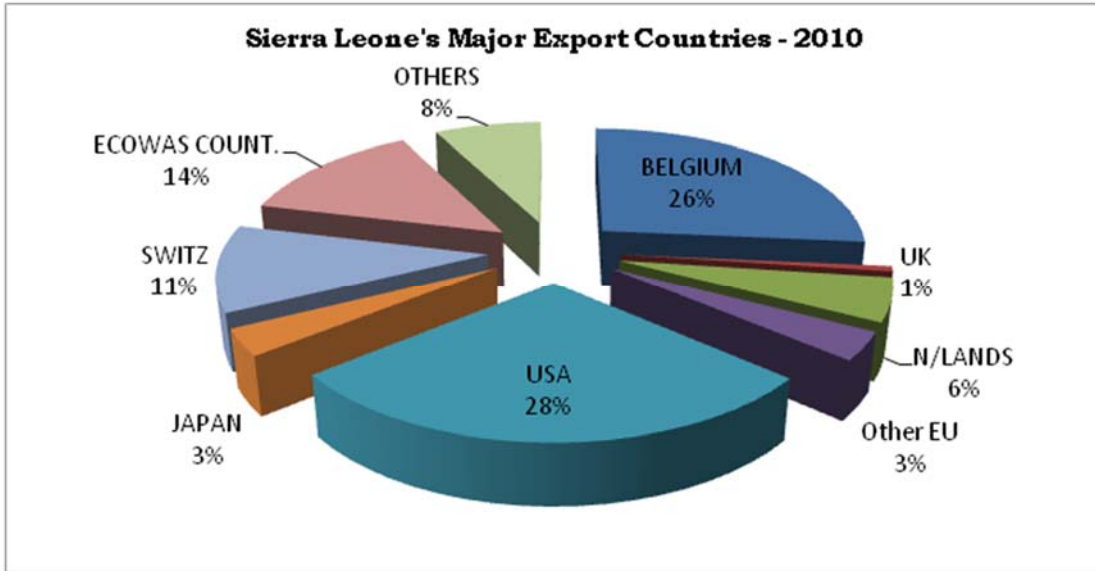
Products	2002	2005	2008	2009	2010	2011
<i>Food</i>	70,783.2	53,115.3	116,083.5	104,509.7	104,894.0	245,883.5
<i>Beverages & Tobacco</i>	11,320.0	9,920.2	22,139.4	25,255.6	19,487.5	33,141.5
<i>Crude Materials</i>	9,212.1	8,754.2	14,345.3	16,142.2	13,267.3	18,469.6
<i>Mineral Fuel & Lubricants</i>	51,728.9	115,597.0	200,641.8	126,459.4	171,414.2	275,758.2
<i>Animal & Vegetable Oil</i>	2,826.6	1,306.8	4,719.9	7,764.1	9,435.1	9,629.9
<i>Chemicals</i>	18,302.7	22,746.8	24,515.8	33,682.7	43,837.9	67,039.4
<i>Manufactured Goods Classified by Materials</i>	35,900.5	40,674.5	56,876.0	67,746.2	110,535.5	175,716.6
<i>Machinery & Transport Equipment</i>	50,216.8	71,824.1	75,586.5	95,085.7	248,698.2	756,262.4
<i>Miscellaneous Manufactured Articles</i>	13,986.2	17,125.0	19,231.2	43,659.2	18,217.6	31,261.5
<i>Miscellaneous Transactions & Commodities</i>	-	-	-	-	30,250.2	103,394.9
TOTAL	264,277.0	341,063.9	534,139.4	520,304.8	770,037.5	1,716,557.5

Source: Bank of Sierra Leone

From Table 8-2 we can see that imports have been growing at a faster rate. From 2002 to 2011, imports increased from about \$264.3million to \$1.72 billion, an increase of over 2,000 percent. This was triggered mainly by the growth in machinery and transport equipment. Key reason for this was the increasing demand for machines for road construction and mining activities. Total imports for 2011 shows that machinery and transport equipment account for about 44 percent of total imports.

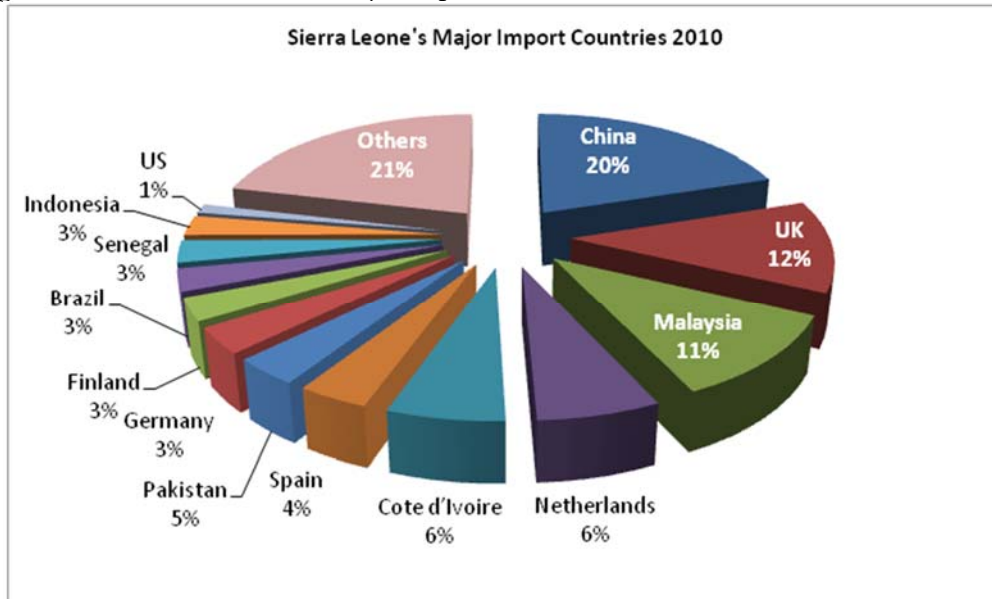
To understand Sierra Leone's major trading partners, Figure 8-1 and Figure 8-2 show Sierra Leone's major export and import countries for 2010.

Figure 8-1 Sierra Leone's Major Export Countries



Source: Bank of Sierra Leone

Figure 8-2 Sierra Leone's Major Import Countries – 2010



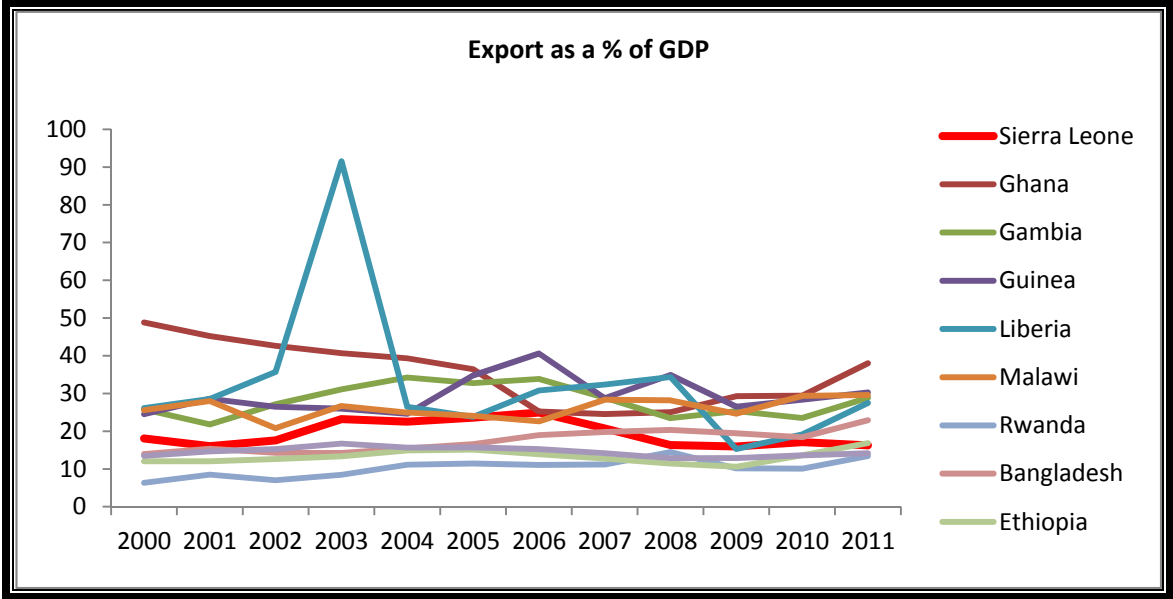
Source: Bank of Sierra Leone

From Figure 8-2 above, it is vivid that the US and Belgium are Sierra Leone's major export countries as they both account for over 50 percent of total exports. Key reason for this is that the key minerals – diamonds, rutile, bauxite and gold; - are exported to these countries. About 50 percent of exports land in the European Union. New destinations of Sierra Leone's exports are Dubai and Portugal. Diamonds are the major export to Dubai. In the case of Portugal, it is sugar from the newly rehabilitated Magbass sugar plant that is being exported. Within Africa, although exports

have increased, they are primarily directed towards Mozambique as bauxite exports. On the side of imports, China, UK and Malaysia accounts for about 45 percent of Sierra Leone’s imports.

Comparing Sierra Leone’s export capacity to her contemporaries, Figure 8-3 shows export as a percent of GDP for Sierra Leone and the comparator countries.

Figure 8-3 Export share for Sierra Leone and Comparator Countries, 2001 - 2011

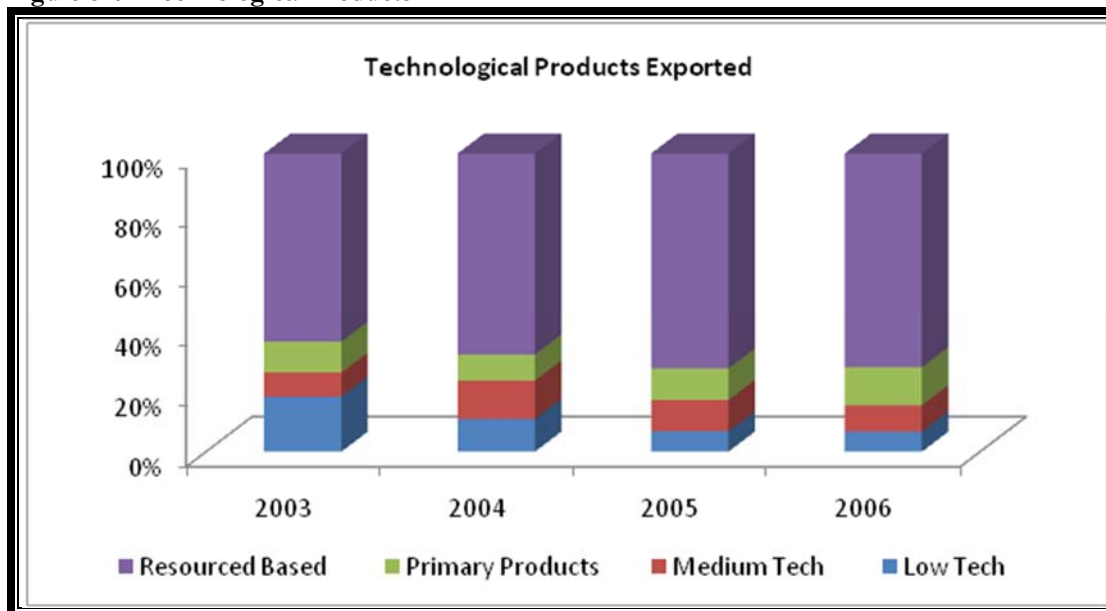


Source: World Development Indicators, 2012

From Figure 8-3, Sierra Leone’s exports as a percent of GDP have been approximately in the lower third when measured against comparator countries. A key reason for lower exports was the war, which destroyed all agricultural infrastructure and mining companies. Later in the decade, the global financial crisis led to a severe fall in the price of diamonds.

There has been an increase in exports in absolute value terms since the end of the war, yet the technological sophistication of the manufacturing sector has not been growing. Figure 8-4 shows the proportion in value of technological products exported from 2003 – 2006.

Figure 8-4 Technological Products



Source: World Bank 2009

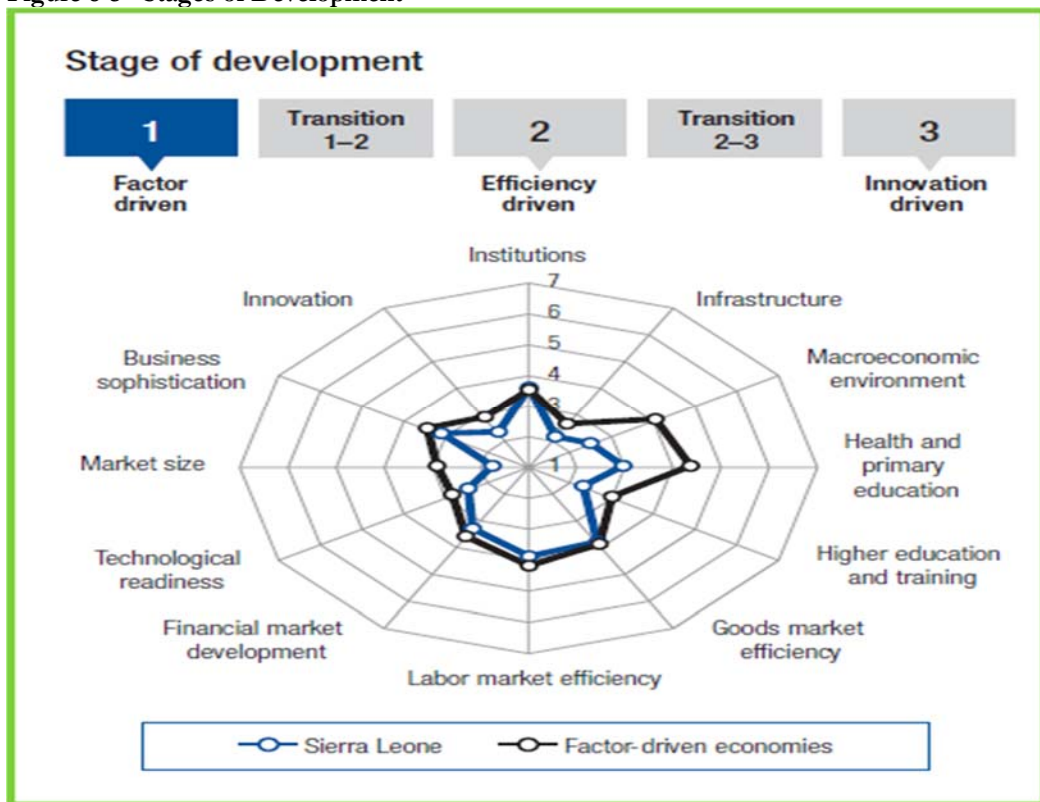
Figure 8-4 shows that resource based products have dominated the technological export basket. Over the years, resource based products have accounted for about two-thirds of technology based exports while low and medium technology products account for about 15 percent. Sierra Leone does not manufacture any high tech product; so no export of such product is included.

8.2 Business Sophistication and Technological Readiness

According to the annual Global Competitiveness Report 2012, Sierra Leone scored 2.82 out of a total score of 7 and is ranked among the least in Global Competitiveness in the world at position 143 out of 144. This basically means that the set of institutions, policies, and factors that determine the level of productivity in Sierra Leone are weak and poor and that the level of competitiveness of Sierra Leonean products in the international market is poor. Under “Innovation and sophistication factors” i.e. business sophistication and innovation, Sierra Leone scored 2.7 out of 7.0 (38.5%) and is ranked 138 out of 144.

From Figure 8-5, Sierra Leone’s stage of development in terms of business technology is smaller than other factor driven economies. Sierra Leone is doing poorly especially in the area of transition and innovation driven aspects of development.

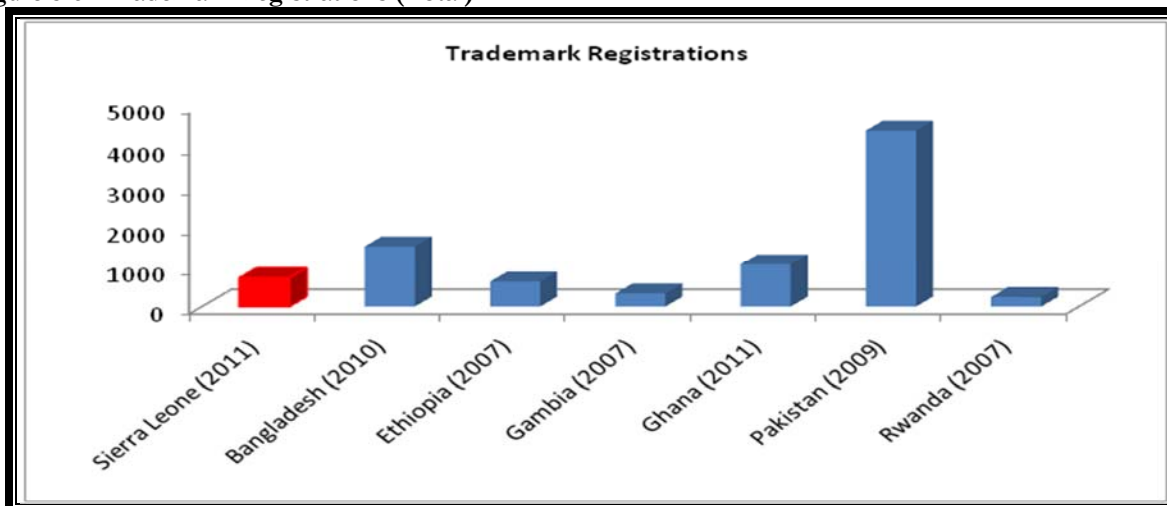
Figure 8-5 Stages of Development



Source: Global Competitiveness Report 2012

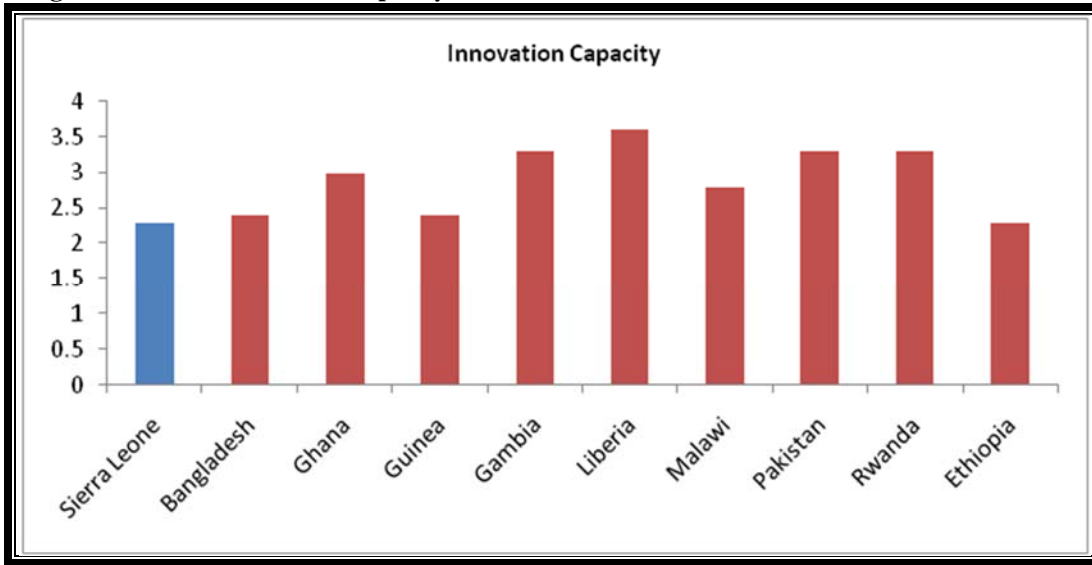
Taking a closer look at Sierra Leone's performance with respect to innovation and technology, Figure 8-6 shows the number of trademark registrations, the capacity to innovate and the availability of technology.

Figure 8-6 Trademark Registrations (Total)



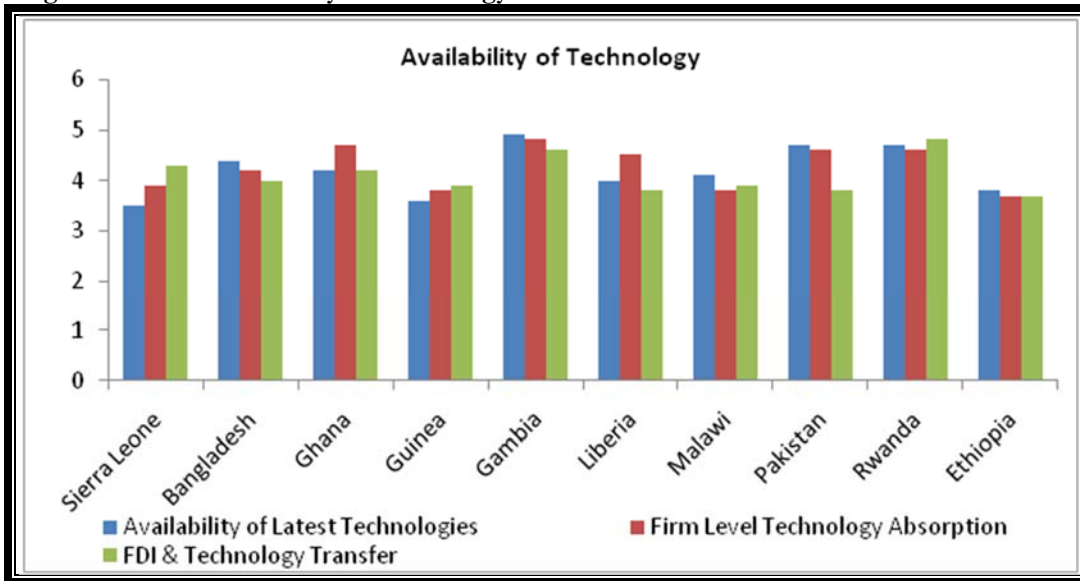
Source: UNCTAD Statistics 2012

Figure 8-7 Innovation Capacity¹⁰



Source: The Global Competitiveness Forum 2012 – 2013

Figure 8-8 Availability of Technology



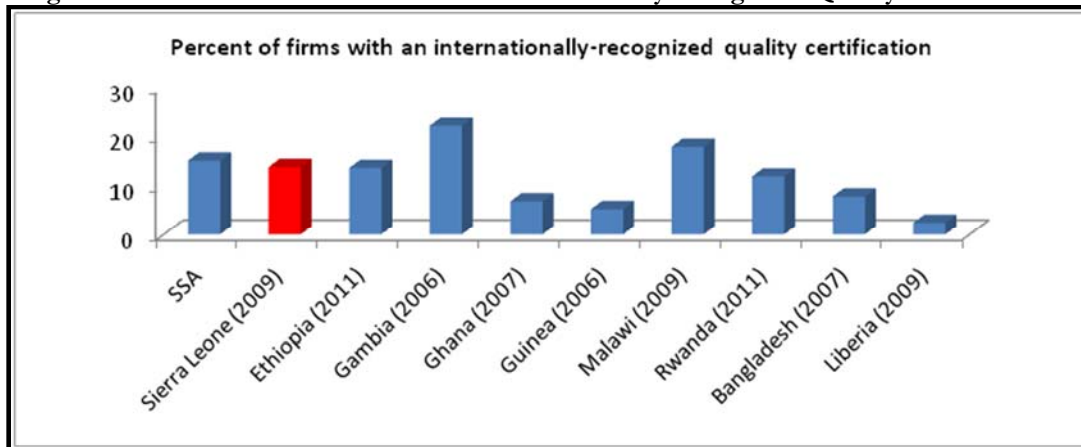
Source: The Global Competitiveness Forum 2012 – 2013

As shown in Figure 8-6 about 724 trademark registrations were done in Sierra Leone. All of these registrations were done under the Madrid system for the international registration of marks. On the capacity to innovate, Sierra Leone is almost at par with the comparator countries. Sierra

¹⁰ This measures a country's capacity to innovate taking into consideration research and development for innovation. This was measured using a score of 1 – 7 with higher scores indicating a better scenario.

Leone’s low capacity to innovate could be attributed partly to low expenditure on research and development.

Figure 8-9 Percent of Firms with an Internationally Recognized Quality Certification



Source: World Bank Doing Business Survey (Various Years)

Figure 8-9 shows that Sierra Leone is among the countries doing well comparatively with regard to firms with an internationally recognized quality certification. Sierra Leone is almost at par with the average for SSA.

8.3 Export Concentration, Diversification and Sophistication

Export diversification is considered as the expansion of exports due to new products or new markets – extensive margin¹¹. Amurgo-Pacheco and Pierola (2008) defines export diversification as the export of new products to existing markets, old products to new markets, and new products to new markets. Export sophistication on the other hand basically refers to the diversification of exports into new products and usually with higher value-additives. Export diversification is important because it builds resilience of poorer countries to external economic shocks. Diversification is more relevant today because of the impact of the global financial crisis which affects both rich and poor economies globally.

The main contribution of the Hausmann, Hwang and Rodrik (2007) study which proposed the measure of export diversification argues that future growth is significantly influenced by current export sophistication of the country in question. The key argument in favour of diversification is that in order to sustain high economic growth, developing countries must diversify their production base into high value added production. Diversification is therefore argued to be a

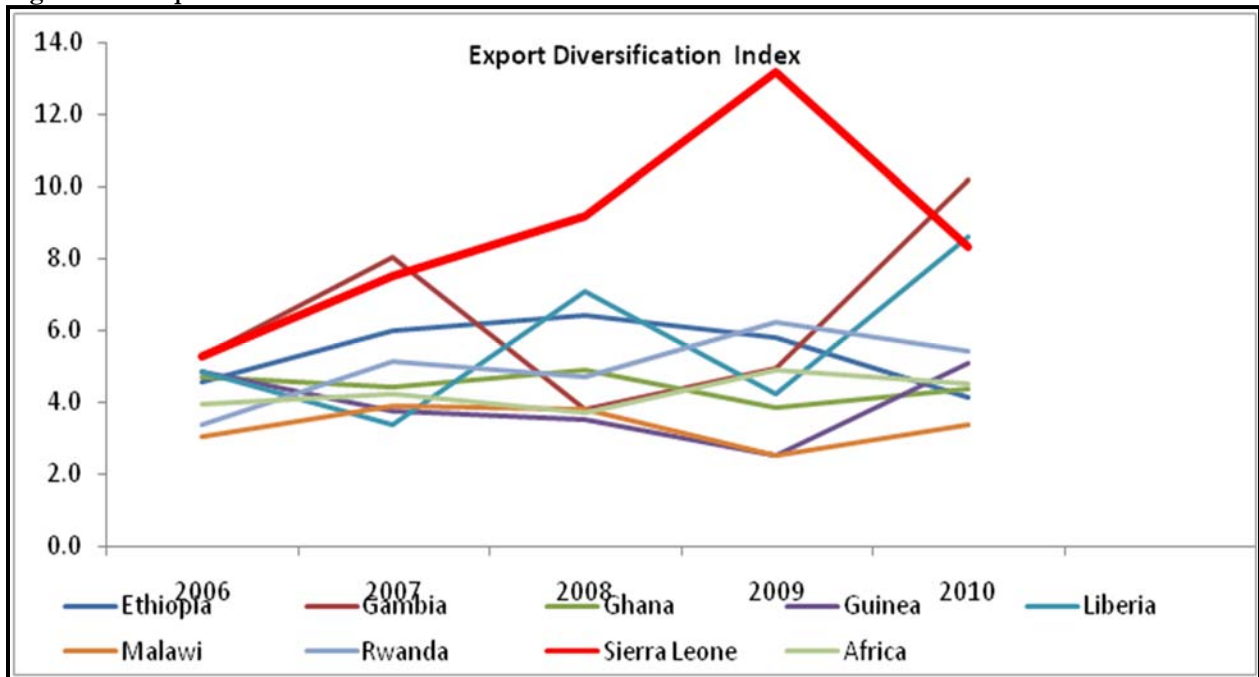
¹¹ Market extensive margin is another view of the diversification process and it refers to the new exports of existing products into new markets; the new exports of new products to existing markets; and new exports of new products to new markets.

prerequisite for economic growth (Economic Commission for Africa, 2007). An argument against diversification for developing countries was given by Brenton et.al. (2007) who argued in favour of developing countries focusing on greater differentiation of existing products rather than attempting to diversify into new export categories. Their argument is that export growth at the intensive margin is far more significant for developing countries than that at the extensive margin (i.e. export growth is dominated by intensifying trade in existing products rather than undertaking new export activities).

Export diversification is driven by the strength of the economy (GDP per capita), size of the economy, distance from the sea, and the abundance of natural capital. There is a monotonic increasing relationship between GDP per capita and export diversification. There are limited diversification opportunities at lower levels of development because of scarcity of capital and the indivisibility of investment projects (Acemoglu & Zilibotti, 1997). The size of the economy is an important determinant of economic development. The size of the market directly affects product differentiation – bigger countries produce wider range of products because of economies of scale. On the other hand, the farther away a country is from the sea port, the more the country finds it difficult to increase the variety of her products exported to the world markets. In addition, the abundance of natural resources removes the incentives for diversification and sophistication of the export structures. As put by Harrigan and Zakrajsek (2000), countries abundant in one resource tend to have highly concentrated export structures.

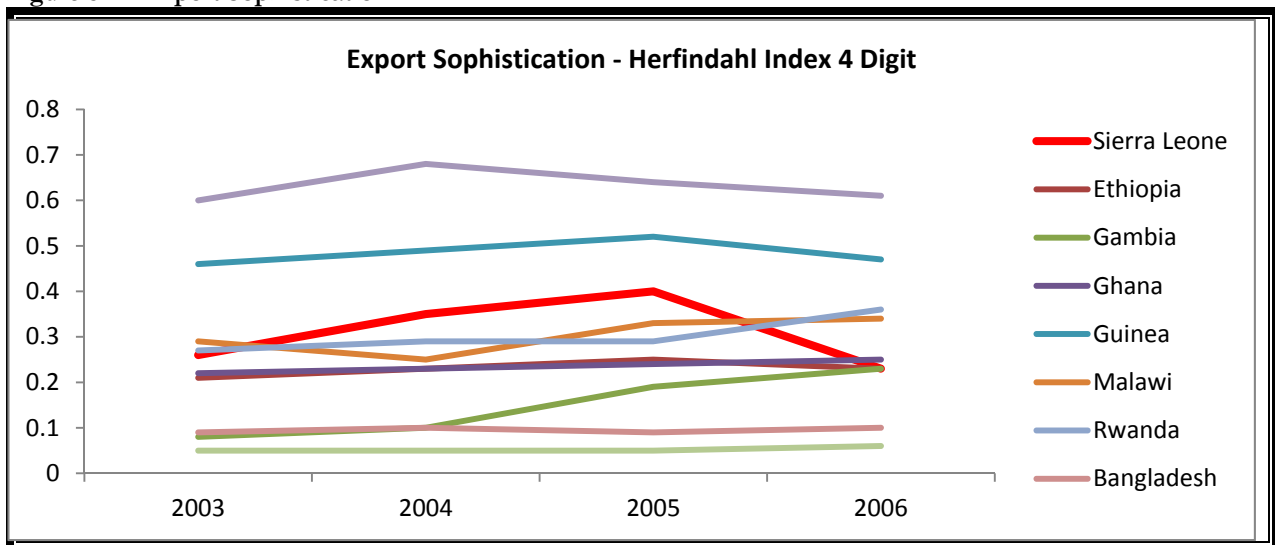
A commonly used indicator of export diversification is the Herfindahl index of diversification. This index is used to understand the level of competition that exists within the market or industry, and also gives an indication of how the distribution of market share occurs across the companies included in the index. The index captures the export share concentration by product class. The Herfindahl Index lies between 0 and 1; an index value closer to 1 represents extreme concentration (low export diversification) and value close to 0 attests of high diversification (low concentration).

Figure 8-10 Export Diversification Index



Source: Africa Economic Outlook 2012

Figure 8-11 Export Sophistication



Source: World Bank, 2012

The figures above (Figure 8-10) show the level of export diversification and sophistication for Sierra Leone and her counterparts. From the export diversification figure, we note that Sierra Leone lags behind in terms of export diversification, and has actually moved toward further concentration of its exports over the period under review. However, given the key role of diamonds in the total exports of Sierra Leone, the rising price of diamonds over the years explains such concentration. (A high price of diamonds increases the value of diamond exports

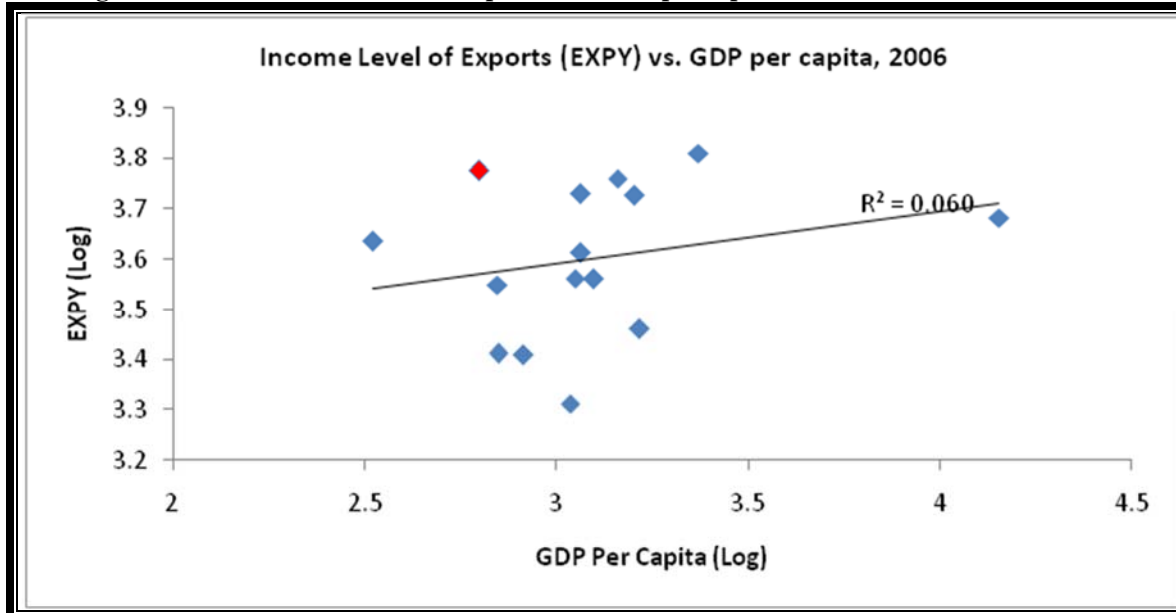
relative to non-diamond exports, making the export basket more concentrated.) Indeed, the Herfindahl index for Sierra Leone is above 0.25, suggesting that exports from Sierra Leone remain highly concentrated.

With its high dependence on primary commodities and fluctuating world prices on most primary goods, there is a need for Sierra Leone to pursue developmental strategies which promote export diversification. The composition of Sierra Leonean exports has remained largely unchanged; minerals, coffee and cocoa remain the primary exports. Recent mining projects in minerals such as gold and iron ore may broaden the spectrum of exported minerals, although export levels are anticipated to remain small in comparison to exports of diamonds, rutile and bauxite. The export of minerals will take a new dimension now that African Minerals and London Mining are both exporting iron ore. In terms of agriculture, although coffee and cocoa are enjoying some resurgence, the production of these commodities does not benefit from foreign investment. However, with the establishment of agro-based companies like Felix Juice, Maize Milling Company, SCOFIN, etc., it is hoped that the export of these will soon be realized.

A study by Imbs and Wacziarg (2003) found that the process of diversification follows a two stage process (U-shape relationship), in which growth in early stages of development is accompanied by diversification, until a turning point upon which the trend reverses toward increasing specialization once more. This work looks at the relationship between the income level of exports and GDP per capita (PPP) to determine the level of productivity of Sierra Leone's export. Figure 8-12 and Figure 8-13 show the relationship between income level of exports and GDP per capita (PPP) for Sierra Leone and her comparator countries¹².

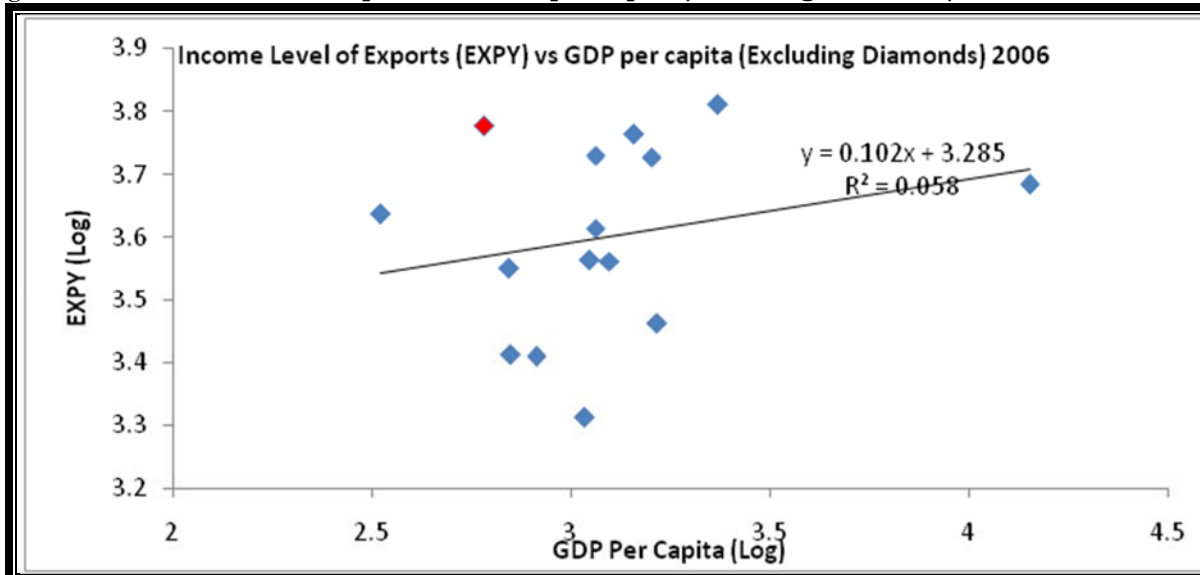
¹²The comparator countries include the following Ethiopia, Gambia, Ghana, Guinea, Malawi, Rwanda, Senegal, Bangladesh, Pakistan, Cote d'Ivoire, Burundi, Burkina Faso, Kenya, Gabon.

Figure 8-12 Income Level of Exports and GDP per capita.



Source: World Bank Database 2012 and Author's Calculations

Figure 8-13 Income Level of Exports and GDP per capita (Excluding Diamonds)



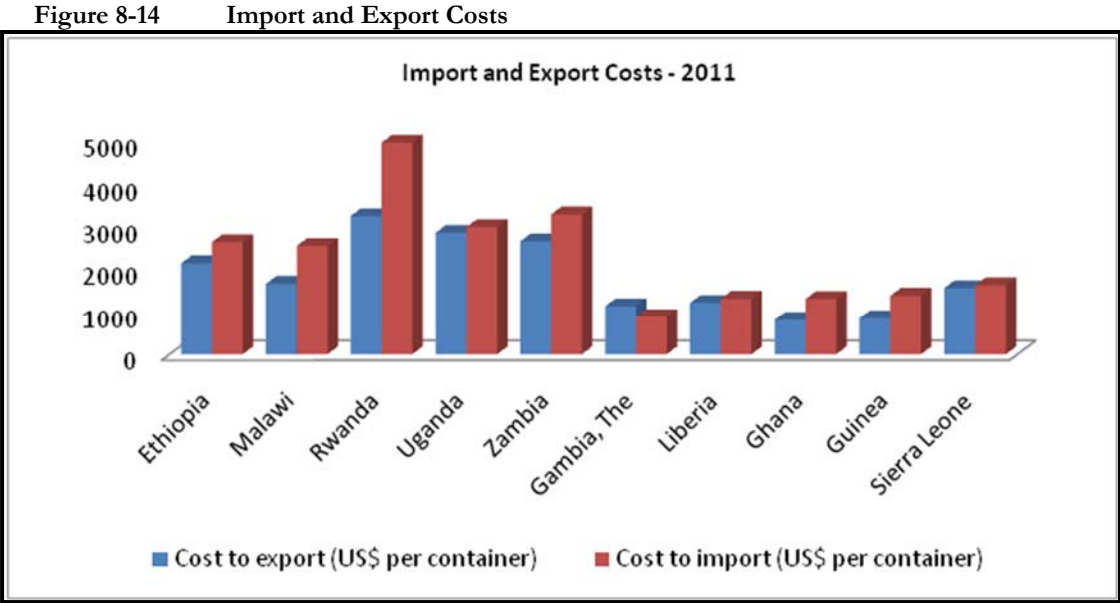
Source: World Bank Database 2012 and Author's Calculations

Hausmann, Hwang and Rodrik (2007) in their study proposed that future growth of economies is significantly influenced by their current export sophistication. Points above the fitted line can be thought of as countries exporting products that are richer than they are, hence expecting higher growth in the future. However, points below the line represent countries exporting products of lesser sophistication than those having comparable incomes and growing more slowly unless

they can move into exporting more sophisticated goods. From Figure 8-12, Sierra Leone (shown by the bright red point) lies above the fit which indicates that innovation may not be a constraint to private investment (growth) in Sierra Leone. When we exclude the contribution of diamonds (Sierra Leone’s major export) from GDP in

Figure 8-13, Sierra Leone again lies above the fit, which reiterates that innovation may not be a constraint to growth in Sierra Leone for now.

To understand the cost of exporting in a country, we look at the cost of export and import per container shown in Figure 8-14. We note that this cost measures the fees levied on a 20 foot container in US dollars and takes into consideration the fees associated with completing the procedures to export or import goods.



Source: World Bank Doing Business Survey, 2011

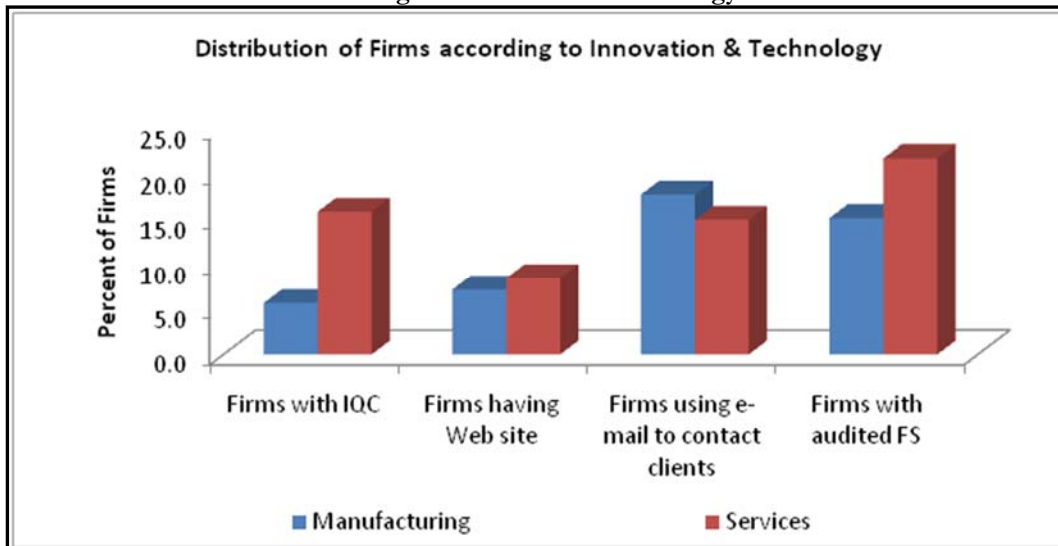
From Figure 8-14 it is cheaper to export and import goods from the Gambia, Guinea and Ghana than all the other comparators. Possible reasons for this could be favourable trade regulations as it pertains in these countries and in the case of Guinea, the free port system. However, the situation is not that worse in Sierra Leone as compared to Rwanda, Uganda, Zambia and Ethiopia. As at 2011, Sierra Leone was the 46th most expensive country (out of 177 countries) in the world to export a 20 foot container from, according to the World Bank doing business survey.

8.4 Business Environment

A favourable domestic enabling business environment is crucial for present and potential exporters. The business environment involves several aspects and includes all the factors that affect investment feasibility and profitability, including, for instance: an effective judicial system, an efficient regulatory environment, the availability of skilled and specialized workers, the accessibility of reliable information on procedure and fees for licenses, and the burden of formal procedures to start a business.

According to the “Doing Business” survey; (World Bank, 2011), Sierra Leone in 2011 (as well as in 2010) was ranked 143 out of 183 economies in ease of doing business. The ranking is determined on the basis of the ease of doing business in the nine stages that characterize an entrepreneurial project, namely: starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. The survey also shows that the number of licenses, permits and approvals needed by businesses and the time taken to obtain them are expensive and time consuming. For instance, it takes about 95 days to obtain construction related permit, whereas for the same service it takes about 55 days for the average Sub Saharan Africa and Low Income Countries. We note from Figure 8-15 that, apart from firms using email to contact clients, service related firms have dominated innovation and technology aspect. It shows that more firms in the services sector have audited financial statements than their counterparts in the manufacturing industry.

Figure 8-15 Distribution of Firms according to Innovation & Technology



Source: World Bank Enterprise Surveys 2012

8.5 Government Policies to Address Market Failures in innovation

Sierra Leone has made significant progress since peace was declared in 2002. Government has introduced several policies aimed at promoting trade and in turn economic growth. Sierra Leone is faced with a myriad of challenges, all of which need to be addressed in the near term.

The Sierra Leone government made a policy to introduce duty free for both import and export in the agribusiness industries. Added to this was the introduction of corporate tax holidays for up to 10 years to help emerging exporters overcome potential start up and foreign competition problems. To support trade in the country, the defunct Sierra Leone Export Development and Investment Corporation (SLEDIC) was replaced with the Sierra Leone Investment and Export Promotion Agency (SLIEPA). SLIEPA was established to coordinate, promote and generate foreign and domestic investments and also development of traditional and non-traditional products, with a strong focus on product diversification, value addition and provision of support to SME's.

The Investment and Export Promotion Agency Act (2007) which led to the closure of SLEDIC and the establishment of SLIEPA, and the Registration of Business Act (2007) were all geared towards making business registration simpler. Other acts that were established to help make business easier were the Business Start – Up Act (2007) and the Bankruptcy Act (2009) with the aim of helping to ensure business closure was easier. To create the enabling environment for and support export, the government of Sierra Leone in 2009 put together the first national export strategy. The National Export Strategy promotes strong private sector participation and addresses issues of competitiveness through its strategic objectives as follows:

- improving productivity and enhancing value addition;
- diversifying the current export base; and
- strengthening the human and financial capacity of all stakeholders along the value chain.

This strategy document spans the period 2010 to 2015 and covers the main export sectors of the economy which are agriculture, fisheries, mining and tourism sectors and also the cross cutting issues of Trade Finance, Quality Management, Export Competence, Export Packaging, Trade Facilitation and Trade Information which affect the performance of the export sectors (Ministry of Trade and Industry, 2010). While Sierra Leone has a comparative advantage over many other countries in terms of its export resources and potential, these by themselves cannot maintain broad-based economic growth in the long term. There is a need to move away from a situation of comparative advantage to a situation of competitive advantage to improve national export competitiveness. Creating a competitive advantage requires a carefully crafted strategy. In an increasingly globalized world, nations and organizations simply have to stay ahead of the competition to survive and they need a strategy to do so. An export strategy is part of a wider market entry strategy for goods and services of a country to enter the world trading system.

8.6 Conclusions

In as much as export is considered as the engine of growth and that market failures in innovation is a reality in Sierra Leone, testing whether they pose a binding constraint to growth is difficult. One such way to determine whether market failures in innovation is a constraint is to assess the strength of government efforts in addressing such failures. Another way is to look at the reasons for lack of innovations in Sierra Leone. Failure to innovate and generate growth in the economy could be as a result of lack of key growth factors in the economy such as lack of key infrastructure, lack of skilled labour, high cost of acquiring land, high cost of finance etc. An important factor to determine whether failures in innovation are a binding constraint is to look at barriers to competition – especially through international trade – a key determinant to innovation (Grossman and Helpman 1990) as would high cost to export and other appropriability issues which would reduce the ability to innovate.

The major test in determining whether market failures in innovation are a binding constraint is a high shadow price for innovation as a result of market failures. One key indicator is the cost to export per container. As compared to the comparator countries, the cost to export per container is not expensive. As at 2011, Sierra Leone was the 46th most expensive country (out of 177 countries) in the world to export a 20 feet container according to the World Bank doing business survey. Sierra Leone's performance in global competitiveness is extremely poor as it is ranked 143 out of 144 countries in the world according to the World Economic Forum (WEF) Global Competitiveness Report 2012-2013. Taking into consideration "Innovation and sophistication factors" i.e. business sophistication and innovation, Sierra Leone is ranked 138 out of 144; technological readiness, Sierra Leone is ranked 141 out of 144 countries; and Sierra Leone is ranked 136 and 139 out of 144 countries in terms of business sophistication and innovation, respectively. It is the lowest in providing the basic requirements for competitiveness. It is ranked as one of the 20 worst macroeconomic environments in the world and among the least in technological readiness in the world in position 140 out of 144.

The data and indicators for Sierra Leone show mixed results for market failures and innovation. Sierra Leone's export is highly concentrated due to its overdependence on diamonds/minerals. While Sierra Leone has a comparative advantage over other countries in terms of its export resources and potential, these are mainly resource based. However, as the evidence in this chapter shows, the structure of production in Sierra Leone is one that is generally in the low technology end of the product space. This in turn means that the shadow price of innovation and technology is generally low for Sierra Leone. Market failures like lack of self-discovery and coordination failures such as inadequate infrastructure inputs like power, roads, transport, water and sanitation and ICT especially, to export sophistication, are constraining growth and development in Sierra Leone. Export and import costs are however, comparable to the other countries as the income level of exports (EXPY) and GDP per capita that shows Sierra Leone's level of export sophistication in relation to her income level indicates.

Although the available evidence suggests that market failures in innovation may be challenging, they do not impose a significant cost on private investment in Sierra Leone, hence not a binding constraint to private investments in Sierra Leone.

9 Human Capital

The general rate of economic growth and development in any country is influenced by the level of productive factors. One factor associated with development or underdevelopment is human capital. For firms, a shortage of the required skills for business operations would reduce their ability to generate acceptable returns from their investment. This could come about when the available skills set are costly. Typically, this could be as a result of low supply of needed human resources coupled with high demand, resulting in a high wage for skilled labour. Additionally, a shortage of required skills in the country results in the importation of skills from abroad. We investigate in this chapter the question of whether human capital is constraining private investment in Sierra Leone. In evaluating human capital constraint for Sierra Leone, the analysis examines the enrolment pattern of primary, secondary and tertiary levels and attainment patterns across the country. Further, we estimate Mincerian regressions with a view to understanding the nature of the shadow price of human capital. We also assess the overall health status of citizens in the country.

9.1 Education

9.1.1 Overview and Structure of the Education System

Encouraged by trends in other English-speaking West African countries and around the world, the government adopted the 6-3-3-4 system of education in 1993 and recently revised it to a 6-3-4-4 system in 2012. This step has been seen as a bold attempt to move the country away from a predominantly grammar school type of education, which takes neither the varied talents of the pupils nor the socio-economic needs of the country into account. The 6-3-4-4 education system is composed of 6 years of formal primary education, 3 years of junior secondary school (JSS), 4 years of senior secondary school (SSS), and 4 years of tertiary level education. Additionally, the Ministry of Education, Science and Technology (MEST) has focused on pre-primary education in the past few years because of the overwhelming evidence that early childhood care, health, and education profoundly influence events later in life.

9.1.2 Supply Side

9.1.3 Student Enrolments

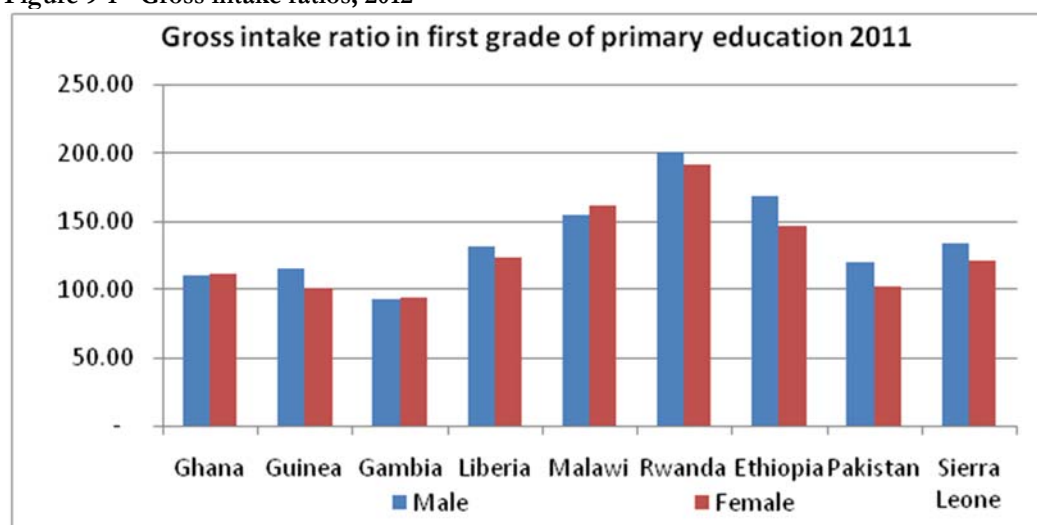
The Government of Sierra Leone has initiated various reforms in the educational system which has resulted in the massive increase in enrolment rate in all levels of the system. The National Education Master Plan covered all aspects of the formal and non-formal sectors of the education system, in providing support for basic education, education for the physically challenged, disadvantaged and gifted learners, women and girls' education, technical/vocational and science education, tertiary education, adult continuing education, national languages, and the administration and management of education. The formal educational system provided by the government is divided according to the following:

1. Basic Education, that comprises pre-primary, primary, and junior secondary;
2. Senior Secondary
3. Technical and Vocational Education and Training (TVET)
4. Tertiary (Universities, Polytechnics and Teacher Training) and Non Formal Education.

9.1.4 Primary Education Enrolment

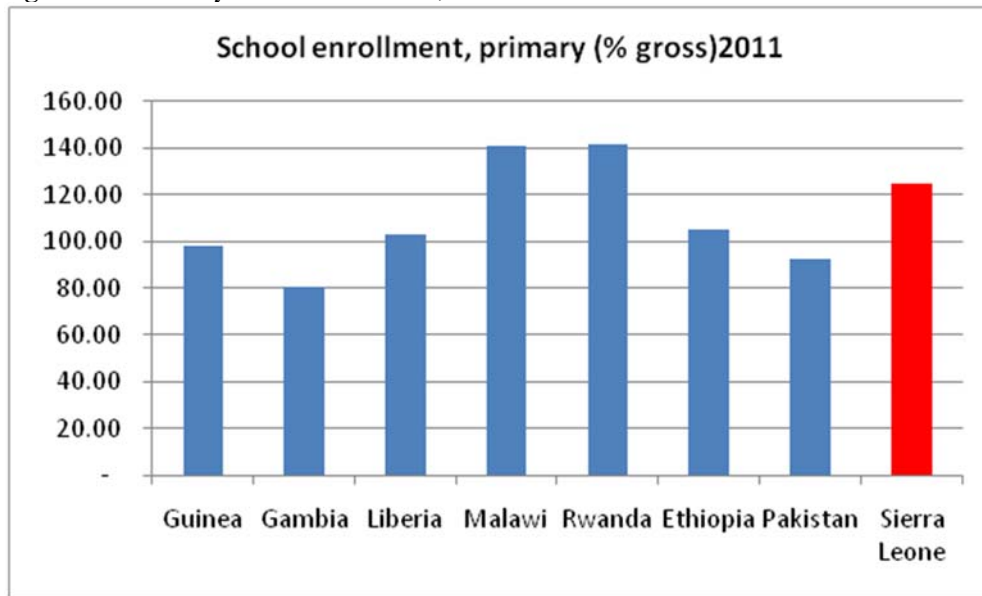
The introduction of the Free Primary Education Policy in 2001 requires all children to complete basic education. The gross enrolment ratio in primary schools surged to more than 100 percent as many older children returned to school to take advantage of the government’s free primary education, and primary school enrolment increased from 70 percent of gross enrolment in 2000 to 125 percent in 2011. Additionally, the reconstruction and rehabilitation of school infrastructure mostly destroyed during the war further enhanced enrolment. In 2011, the gross intake ratio in first grade of primary education, which measures the number of new entrants in the first grade of primary education regardless of age expressed as a percentage of the population of the official primary entrance age, indicated that Sierra Leone performed better than its comparators and was only below Malawi for both male and female intakes (Figure 9-1).

Figure 9-1 Gross intake ratios, 2012



Source: World Development Indicators, 2012

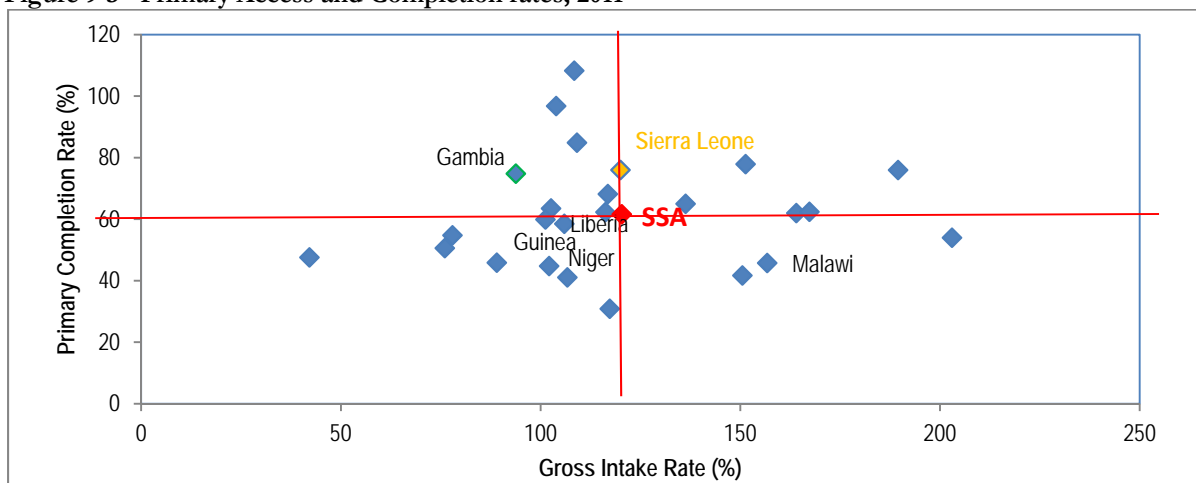
Figure 9-2 Primary School Enrolment, 2012



Source: World Development Indicators, 2012

Similarly, as shown in Figure 9-2, Sierra Leone's primary gross enrolment rate of 125 percent in 2011 was only below Malawi when benchmarked against comparators. Moreover, in comparison, the primary completion rate for Sierra Leone is better than the average for Sub-Saharan Africa as shown in Figure 9-3.

Figure 9-3 Primary Access and Completion rates, 2011



Source: Pôle de Dakar UNESCO/BREDA, 2011.

9.1.5 Secondary Education Enrolment

At the JSS level, Sierra Leone is well positioned in relation to other African countries with comparable GDP per capita to improve on the number of persons with basic education. The access rate is 15 percentage points higher than the average while this difference is equivalent to 18 percentage points for the completion rate. The country's Gross Intake Rate (GIR) in the first and the last grades of JSS are among the highest in this group of countries. Compared to other sub-sectors, Junior Secondary School (JSS) and Senior Secondary School (SSS) enrolments have been growing the fastest, at annual rates averaging 15 percent and 17 percent respectively, above the pre-primary, 10 percent; primary 6.5 percent and tertiary 12.3 percent according to the Ministry of Education, Science and Technology (MEST).

According to the 2010/2011 School Census Report conducted by MEST, there were approximately 1,584,586 pupils enrolled across all levels (pre-primary, primary, junior secondary school, senior secondary) of schools in Sierra Leone. Of these, 48 percent were female and 52 percent male with gender disparities in the different regions being about the same – in the range of 46 percent - 48% (Table 9-1)

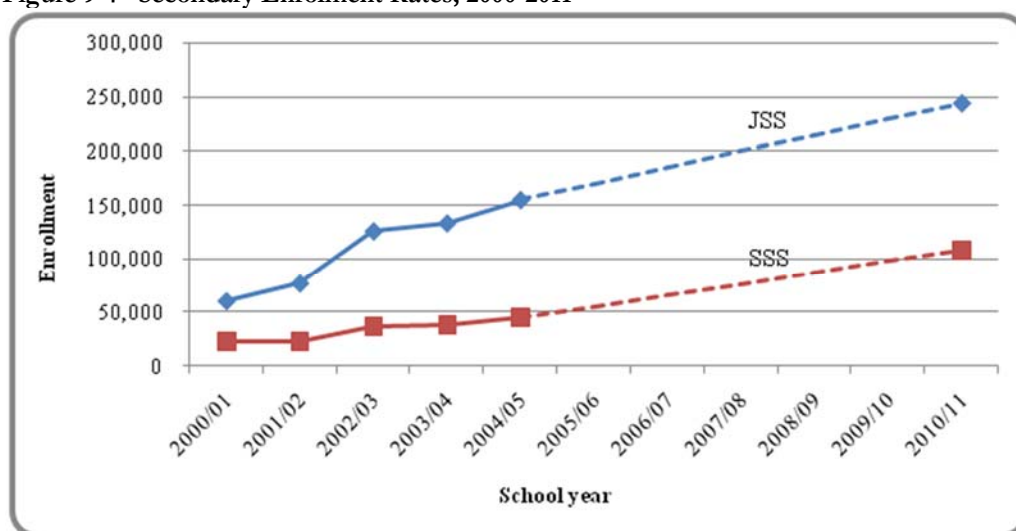
Table 9-1 Enrolment by School Level, 2003-2011

	2003/04	%	2004/05	%	2010/2011	%
<i>Pre primary</i>	19,068		20,632		37,351	
<i>Primary</i>	1,134,815	(45)	1,280,853	(45)	1,194,503	(49)
<i>JSS</i>	133,401	(39)	155,052	(39)	244,489	(45)
<i>SSS</i>	38,324	(31)	44,924	(36)	108,243	(38)
Total	1,325,608		1,501,461		1,584,586	

Source: School Census Report, MEST

Note: The figures in bracket represent the percentage increase in female enrolment.

Figure 9-4 Secondary Enrolment Rates, 2000-2011

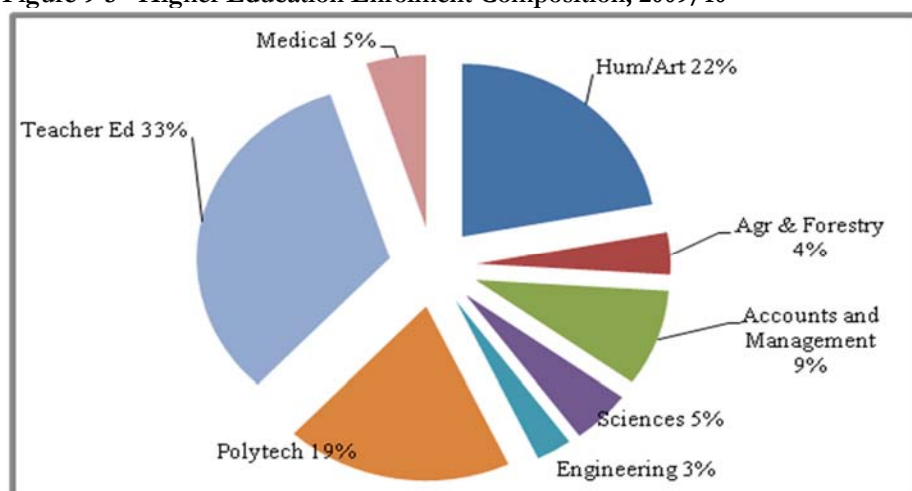


Source: From 2000/01 to 2004/05: CSR 2007; 2010/11: EMIS database.

9.1.6 Higher Education

During the first decade of the 2000s, higher education enrolment almost tripled, from 8,995 to 25,633 students¹³, increasing at an annual rate of 12.3 percent over the period. In 2010, enrolment in engineering, agriculture, science, and medical studies accounted for small shares of total enrolment (between 3 and 5 percent), while the bulk of students were registered in teacher education, humanities and arts, and polytechnics (respectively, 33 percent, 22 percent and 19 percent). Yet, high growth in sciences and engineering was recorded at the end of the period, following a surge in the number of female students joining these programs - favoured by the government incentive programs of offering 'grant-in-aid' to females who study sciences. Still, as shown in Figure 9-5, female participation in tertiary education is lower than that of males, representing a third of total enrolment in 2010 – from 30 percent in humanities and art to 53 percent in medical (Allak, 2012).

Figure 9-5 Higher Education Enrolment Composition, 2009/10



Source: Allak, 2012.

9.1.7 The Evolution of Gross Enrolment Rates for Sierra Leone

The Gross Enrolment Rate (GER) measures the number of students, regardless of age, enrolled in a given level of education as a percentage of the population in the official age range for that level. A high GER generally indicates a high degree of participation, whether the pupils belong to the official age group or not.

International comparisons offer a useful perspective on where Sierra Leone stands in relation to comparator countries. Table 9-2 shows schooling coverage in Sierra Leone and comparator countries. First, it shows that Sierra Leone has a low level of pre-school coverage compared to

¹³Allak (2012) and Lamin et al. (2012) provide more analyses of the higher education sector in Sierra Leone.

other countries save Niger – 6.5 percent against a sub-sample average of 20.3 percent. Second, it shows that Sierra Leone has a better coverage of primary schooling than the average comparator country – it is about 1.2 times higher. Third, the GER for Sierra Leone is much higher than other countries as far as JSS and SSS schooling coverage is concerned - its rate is respectively about 1.5 times and twice higher. Finally, the results show that at the tertiary level, Sierra Leone is comparable to Liberia and The Gambia but significantly lower than the rates for Ghana and Guinea.

Table 9-2 Country Comparisons of GER, 2011 (Percent)

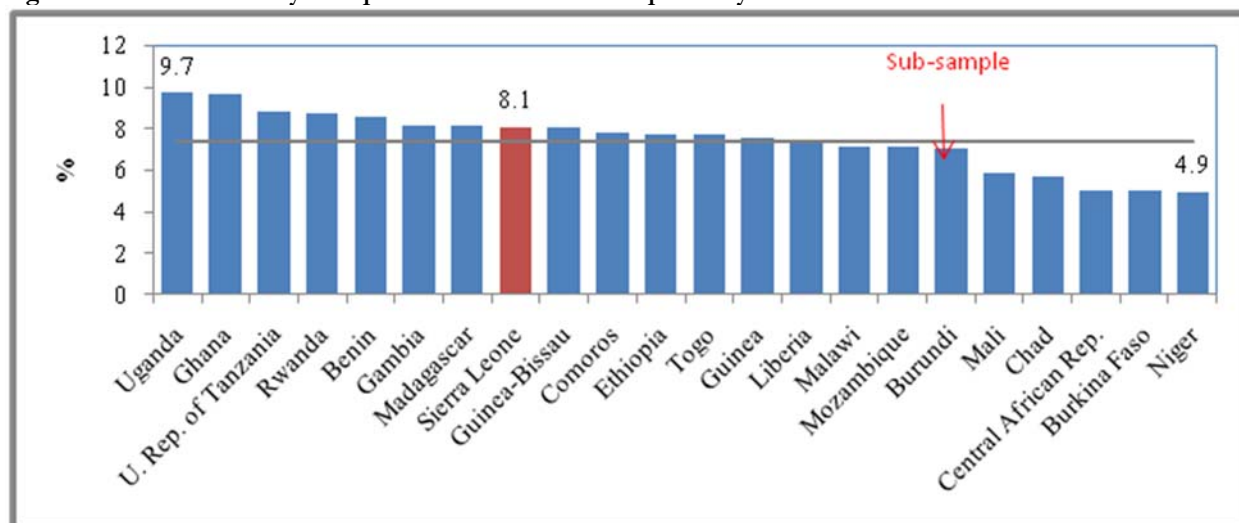
Country	Pre Primary	Primary	Lower Secondary	Upper Secondary	Tertiary
<i>The Gambia</i>	36	88	66	35	447
<i>Ghana</i>	69	106	80	32	854
<i>Guinea</i>	13	92	46	24	839
<i>Liberia</i>	141	96	43	25	408
<i>Malawi</i>	23	118	21	16	61
<i>Niger</i>	5	71	21	4	116
Sierra Leone	7	122	62	32	451

Source: Pôle de Dakar UNESCO/BREDA; Sierra Leone

9.1.8 School Life Expectancy

School life expectancy measures the total number of years of schooling that a child can expect to receive given current schooling patterns. In 2011 school life expectancy was estimated at 8.1 years in Sierra Leone, a figure higher than the average for comparable countries with an average of 7.4 years (Figure 9-6).

Figure 9-6 Cross-Country Comparison of School Life Expectancy



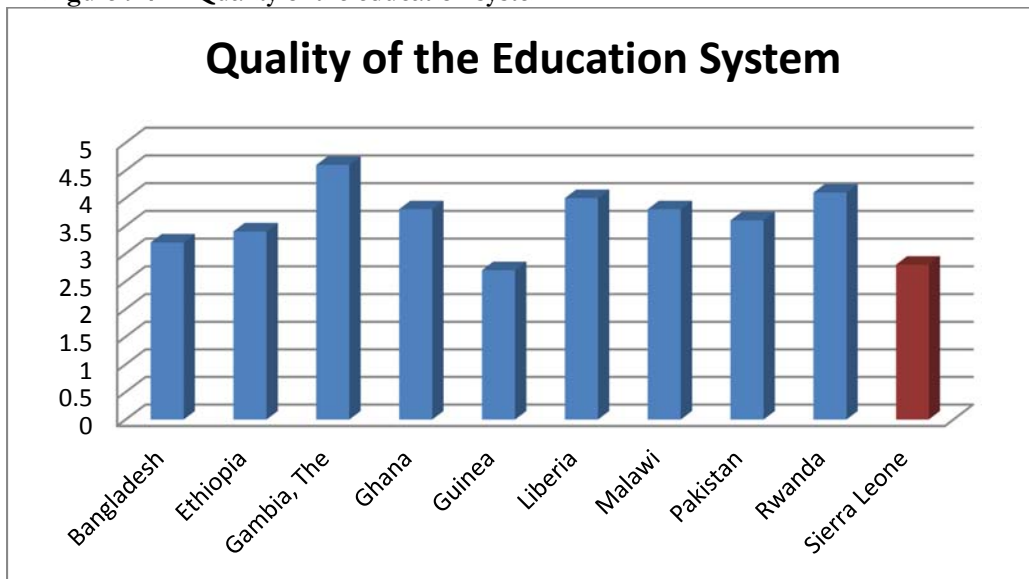
Source: Pôle de Dakar, UNESCO/BREDA, 2011.

9.1.9 Quality of Education Supply

Although Sierra Leone shows good enrolment and completion rates, the quality of education is also important to ensure that the labour force has appropriate skills for the marketplace. According to the Global Competitiveness Report, on the quality of educational system, we see that Sierra Leone's ranking is the least when benchmarked with comparator countries, except Guinea (Figure 9-7). On the quality of Math and Science education as reported in the same report, Sierra Leone has the lowest score and thus the least ranked country as shown in Figure 9-8.

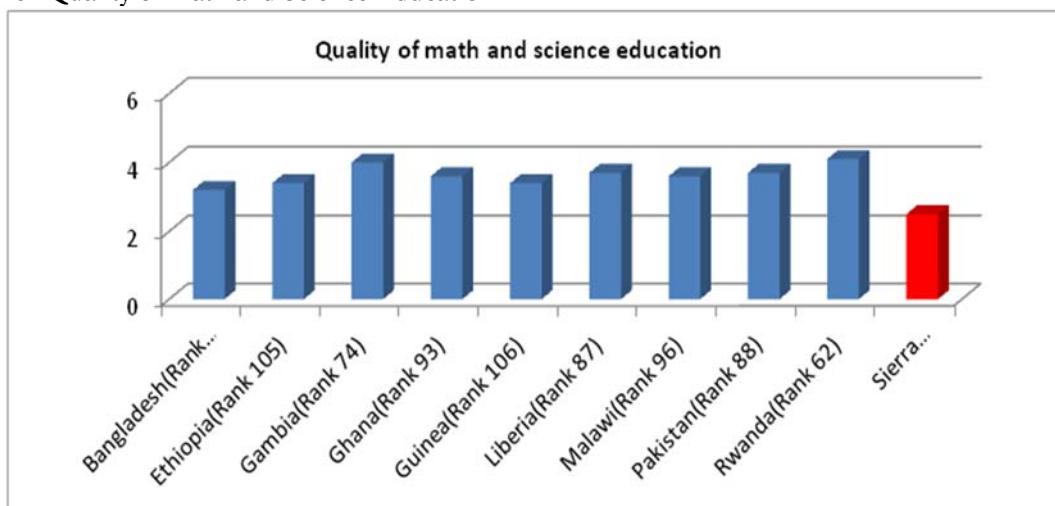
From all of the above, the evidence suggests that access to education in Sierra Leone seems to be good in relation to other comparators. On the other hand, the analysis seems to point to the fact that the quality of education seem to be problematic. The important question is how all of these have translated to the labour market. In particular, is the human capital which results from the educational system able to meet the skill set requirements of firms?

Figure 9-7 Quality of the education system



Source : Global Competitiveness Report, 2012

Figure 9-8 Quality of Math and Science Education

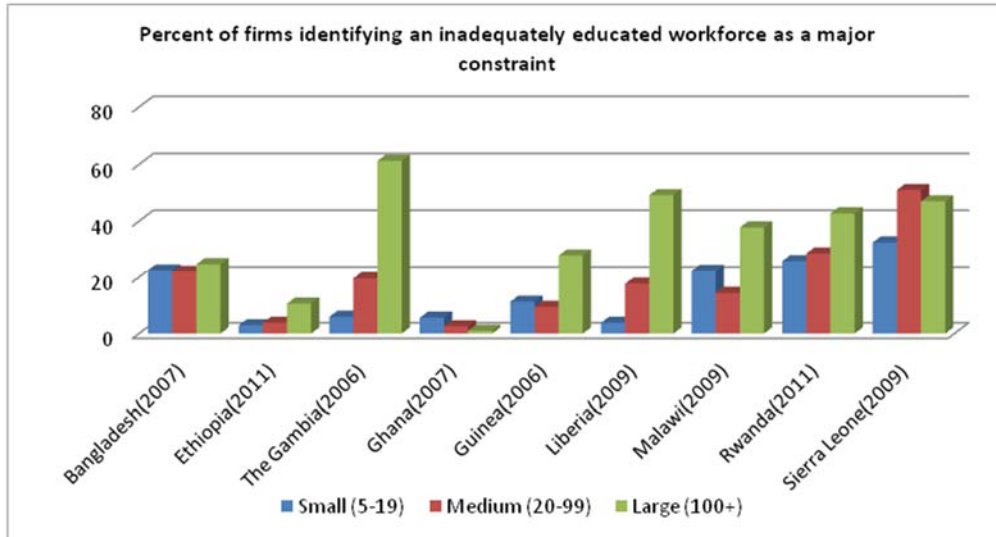


Source: Global Competitiveness Report, 2012

9.1.10 Firms' Perception of Human Capital

In the 2009 World Bank Enterprise Survey, 32 percent of small firms (with 5-19 employees) considered inadequately educated workforce as a major constraint to their operations. This is high when compared to other comparator countries, for that category of firms. Similarly, Sierra Leone had the highest percentage of firms identifying the lack of educated labour force as a constraint among medium firms. We note from Figure 9-9 that the share of firms in Sierra Leone constrained by an inadequately trained work force ranks highest among both small and medium firms, and second highest among large firms. Only The Gambia ranked higher than Sierra Leone. In spite of firms identifying human capital as a constraint, they are not investing in training. For instance, the Global Competitiveness Report shows that Sierra Leone ranks lowest when compared with its comparators (Figure 9-10). This suggests that firms are finding other ways to meet their human resource needs.

Figure 9-9 Perception of labour force of firms by category



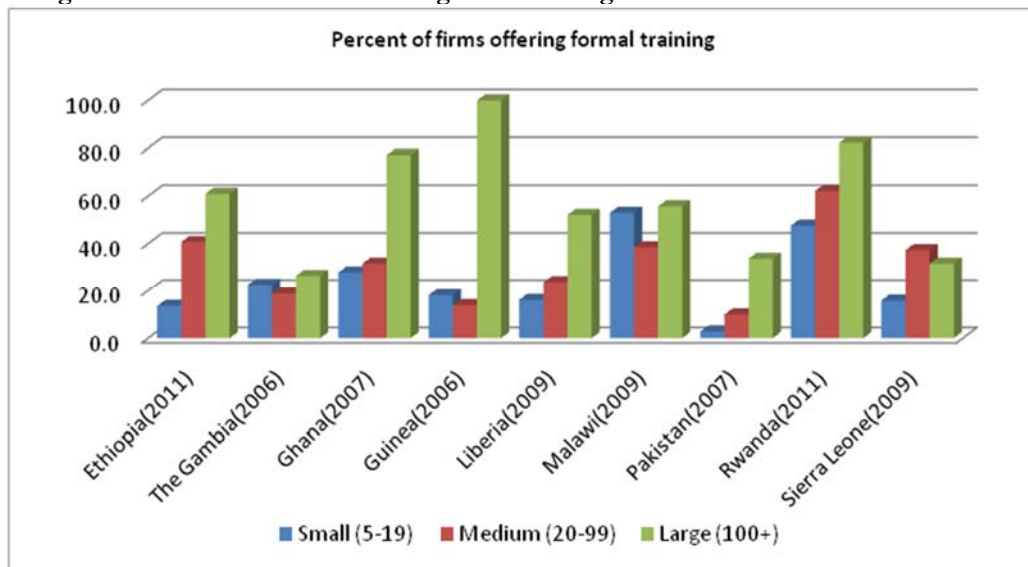
Source: World Bank Enterprise Survey, 2009

Figure 9-10 Extent of staff training



Source: Global Competitiveness Report, 2012

Figure 9-11 Firms Offering Staff Training



Source : World Bank Enterprise Survey

9.1.11 The Labour Market in Sierra Leone

Sierra Leone had an estimated population of 5.9 million in 2010, growing at an average rate of 2.8 percent per annum. The number of new entrants into the labour market every year in Sierra Leone far outweighs the employment opportunities being created. Less than 15 percent of the employed labour force is in regular wage employment. Among the employed, self-employment in both urban informal sector and the rural cash crop economy is the largest category, accounting for roughly half of total employment. The rest are employed in subsistence agriculture and unpaid household activities, with little or no remuneration. The low levels of formal sector employment could suggest that skilled labour is not in demand on a large scale in Sierra Leone.

Another possibility is that low formal sector employment results from a low quality education system, which does not provide workers with the appropriate skills to obtain wage employment. Among those who are able to secure regular wage employment in the formal sector, the majority lack the required skills to perform effectively, leading to under-employment (AFDB, 2012). Some of those employed are working in a field absolutely different from their training. The underemployment situation could be attributed to a mixture of structural problems in the economy and labour market inequalities and inflexibilities. Also, the public sector employment services are not as efficient as could be. There is an absence of a labour market information system and employment data bank which links active job seekers to available employment opportunities. As a result of this, both employers and job seekers suffer from information asymmetry as there is limited interaction between the two in seeking the required skills to fill a vacancy.

According to the African Development Bank, the main feature of the general employment problem is lack of skills rather than a lack of opportunities (AFDB, 2012). This is partly due to the long civil conflict which disrupted formal schooling and sustained technical skills development in various sectors and at different cadres. Both the private and public sectors were to have drawn the required skills from the education and training system, and the qualifications structure would be an indication on which skills were needed. Similarly, there was to be clear guidelines for opportunities in upgrading of skills, which included the multi-entries and exits within the systems. As a result of the non-existence of the afore-mentioned, to date, literacy rates are low, at 54 percent for males and 31 percent for females (WDI, 2012)

Table 9-3 Employment of Sierra Leoneans by Key Industries (% share)

Industry	2007	2008	2009	2010	2011	2012
<i>Banking</i>	3.3	3.8	4.2	4.3	3.9	3.3
<i>Construction</i>	2.8	2.3	2.8	2.2	2.2	1.6
<i>Agriculture</i>	62.8	62.2	61.5	60.8	60.8	61.6
<i>Tourism</i>	0.7	0.3	0.4	0.4	.0.4	0.5
<i>Manufacturing</i>	1.5	1.5	1.8	2.1	2.2	2.2
<i>Mining</i>	1.2	0.9	1.1	1.4	5.4	6.9
<i>Trade</i>	1.1	0.9	0.9	1.1	1.2	1.3
<i>Transport</i>	1.4	1.2	1.2	1.4	1.2	1.0
<i>Others</i>	25.2	27.8	26.6	26.1	23.4	21.6
Total	100	100	100	100	100	100

Source: Statistics Sierra Leone – 2012

Dynamics within the Sierra Leone labour market indicate a skills gap between the labour requirements of the private sector and the output from the education and training institution. It is believed that not many people possess marketable skills and professional work experience (AFDB, Skills Gap Analysis). Additionally, Sierra Leone's success after the war in attracting large scale investors in mining, tourism, banking and commercial agriculture has resulted in an increase in demand for skilled labour.

In a skills gap audit conducted by AfDB, a major finding was that there were gaps in the available skills set. In the agriculture sector, which accounts for over 60 percent of the employment across all sectors, the survey found demand for skills across managerial, professional and technician levels exceeded the available supply. A summary of these skills gap assessed from the survey, by employment cadre is provided in Table 9-4.

Table 9-4 Agriculture sector skills gap analysis (2013)

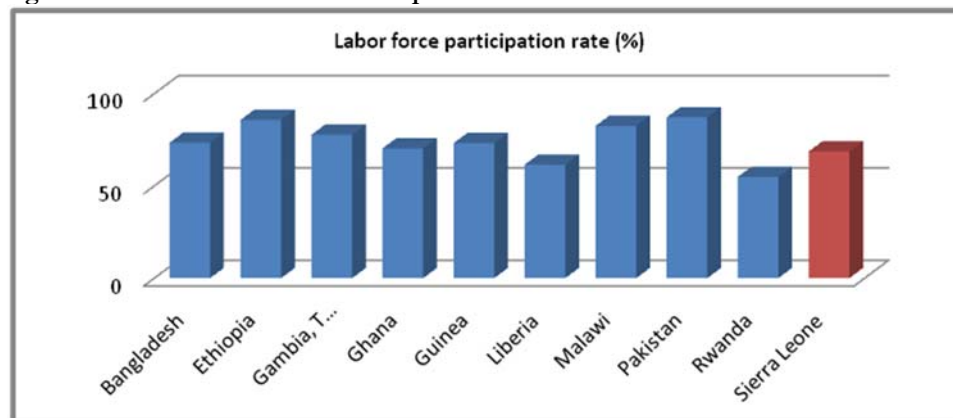
	Total Number Required (2012)	Total Available	Current Gap
Managers	1,263	907	356
Professionals	1,360	1,035	325
Technicians & Trades Workers	7,275	4,784	2,491
Total	9,898	6,726	3,172

Source: AfDB; 2013, A Skills Gap Analysis for Private Sector Development in Sierra Leone

Further, a shortage of qualified, high-skilled workers needed by most sub sector groups leads to increased hiring of foreign nationals to fill the gap. As noted in the African Development Skills Gap analysis report, there is evidence of growing need for upgraded, high-skill requirements in the real sector such as agriculture, industry and service. However, employers in different forums have expressed difficulty in filling high ranking managerial, professional and skilled production and non-production workers as part of the ‘local content policy’ introduced by the Government; accordingly, many may have resorted to hiring foreign nationals to fill the gap. There have been a growing number of foreign nationals employed in mostly the big mining and construction companies. Other sub-sector groups such as banking, engineering and other business activities are also showing strong increases in hiring of foreign nationals.

Despite this skills gap, the lack of adequate labour opportunities cannot be ruled out. Labour force participation in the economy has increased since the end of the civil war, especially amongst the poorest of the population, although this rate is still low. However, when benchmarked against other countries, Sierra Leone's a labour participation rate is near the average of its peers as shown in. It is worth noting the gender gap in the distribution of the work force in key sectors of the economy, where males vastly outnumber females despite a gradual increase in the female share over the past five years (Table 9-5).

Figure 9-12 Labour Participation rate



Source: World Development Indicators, 2012

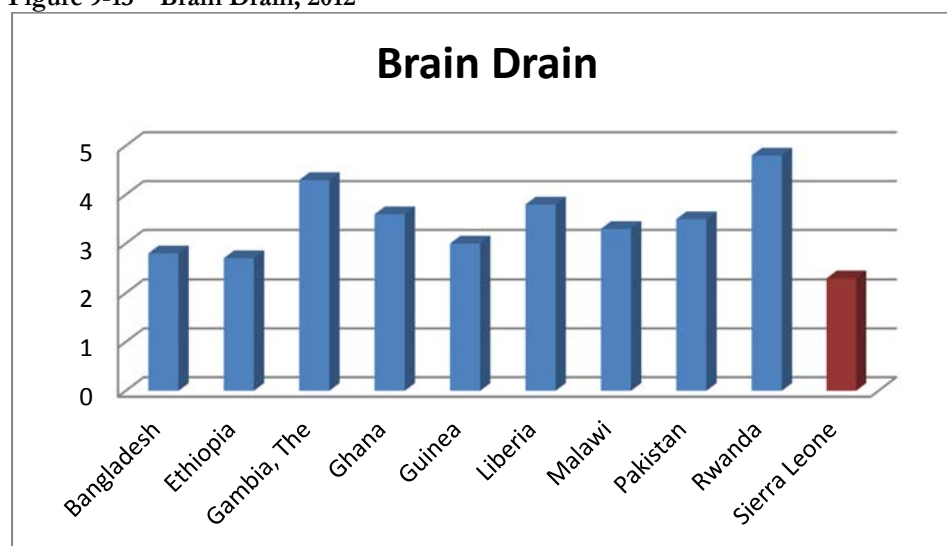
Table 9-5 Trends in Gender Distribution of Formal National Work Force in Key Sectors

Industry	2007 (%)		2008 (%)		2009 (%)		2010 (%)		2011 (%)	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Banking	87.8	12.2	79.8	20.2	80.3	19.7	71.1	22.9	77.5	22.5
Construction	95.9	4.1	95.8	4.2	96.7	3.3	95.9	4.1	96.5	3.5
Agriculture	95.2	4.8	95.3	4.7	95.2	4.8	95.8	4.2	93.3	6.7
Leisure	60.5	39.5	66.8	33.2	65.4	34.6	62.7	32.3	67.5	32.5
Manufacturing	78.3	21.7	73.8	26.2	66.4	33.6	67.7	33.3	67.5	32.5
Mining	90.4	9.6	94.5	5.5	89.1	10.9	84.7	15.3	74.3	25.7
Trade	58.6	41.4	58.7	41.3	59.7	40.3	58.9	41.1	55.8	44.2

Source: Statistics Sierra Leone-2012 Special Report to MoFED

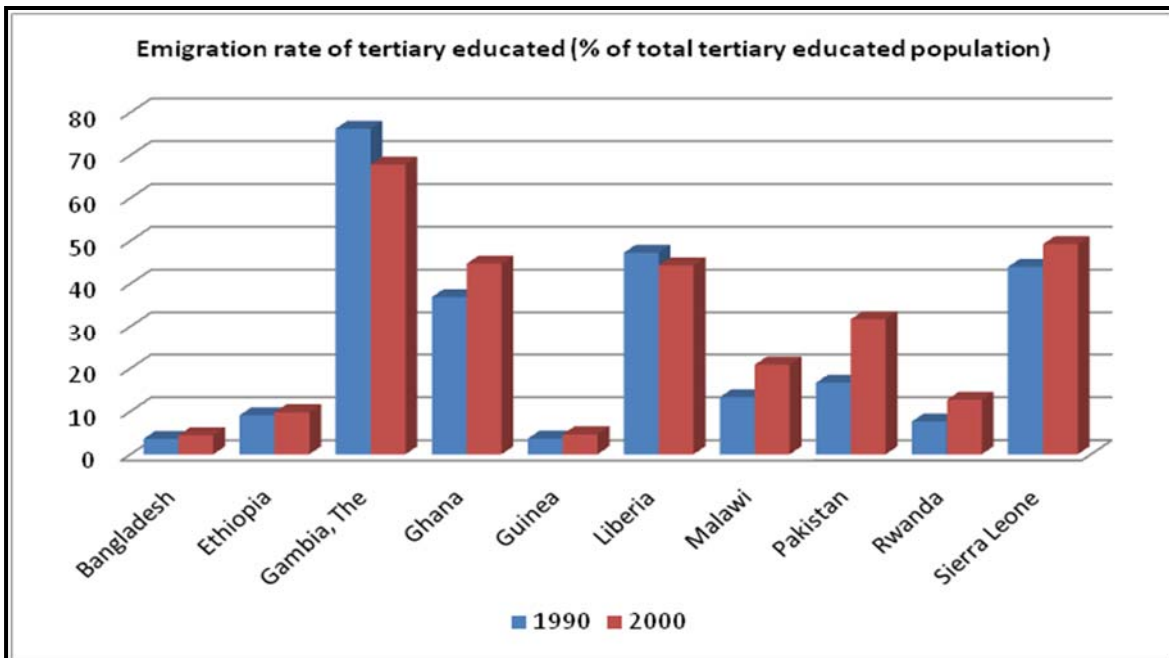
Another fact suggesting a lack of skilled employment opportunities is the outmigration of Sierra Leoneans with higher education. In the 2012 – 2013 Global competitiveness report, Sierra Leone records the lowest score among its comparators when it comes to the country’s ability to retain and attract talented people. This is shown in Figure 9-13, where Sierra Leone records a score of 2.3 out of a maximum of 7, leaving it some way behind its comparators. This is reinforced by the fact that between 1990 and 2010 the trend shows that the rate at which tertiary educated Sierra Leoneans left the country permanently to settle in another country was one of the highest as seen in Figure 9-14. The evidence shows that Sierra Leone has been suffering from ‘brain drain’ disproportionately when compared with its peers. This supports the hypothesis that the present economy cannot provide enough jobs for people with advanced education.

Figure 9-13 Brain Drain, 2012



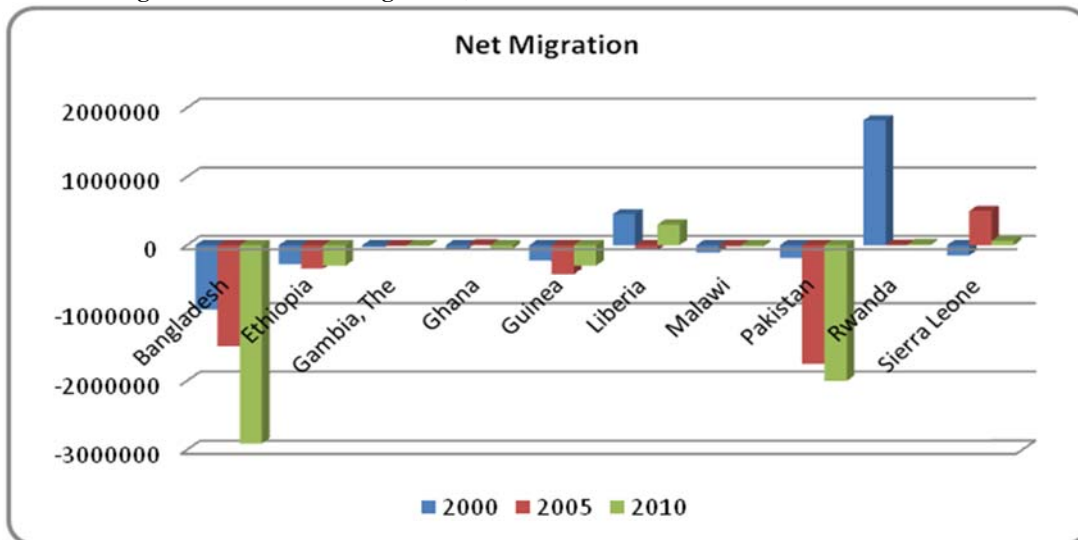
Source: WEF, Global Competitiveness Report, 2012-2013

Figure 9-14 Rate of Emigration from Sierra Leone, 2012



Source: World Development Indicators, 2012

Figure 9-15 Net Migrations, 2012



Source: World Development Indicators, 2012

9.1.12 Return on Education

Our discussion so far points to a labour market which seems to be short of adequate human capital, as shown by the skills gap. On the other hand, we also find evidence that Sierra Leone cannot retain educated individuals and firms are not actively engaged in the training of their workforce. To help determine whether human capital challenge is a supply or demand side problem, we will estimate a Mincer regression using data from the 2011 Sierra Leone Integrated Household Survey. If demand for educated workers is high, but the supply is low – consistent with the skills gap hypothesis –we would expect to find high returns to education as employers pay a premium to attract and retain skilled employees. If demand is low – consistent with the lack of sufficient job opportunities hypothesis – we would expect to see lower returns to education.

Different specifications of the Mincer regressions are estimated and presented the figures below. The regressions are estimated only for wage employees and show that a one year increase in schooling results in a 7.7 to 8.5 percent increase in wages (*Eqn1-Eqn4*). When we control for rural-urban differences and also for individual characteristics such as age or experience, the results do not change much. The results show a significant gender gap between wages for females and males. On average males seem to earn higher wages than females. However, the female-schooling interactive term (*School_F*) shows that the return to schooling for the female is more than twice that of the male (from *Eqn5* to *Eqn6*). These results may reflect the relatively low levels of female schooling or the lower female participation in the labour force. Because the returns to education depend on the level of education received and the likelihood of being employed in the labour force, educated females in the labour force will show much higher returns than women who are not educated or engaged in the workforce. This is important to note for policymakers, as it indicates potential productivity gains from increasing females' education levels and labour force participation rates.

Figure 9-16 The Returns to Education: Sierra Leone versus comparator countries

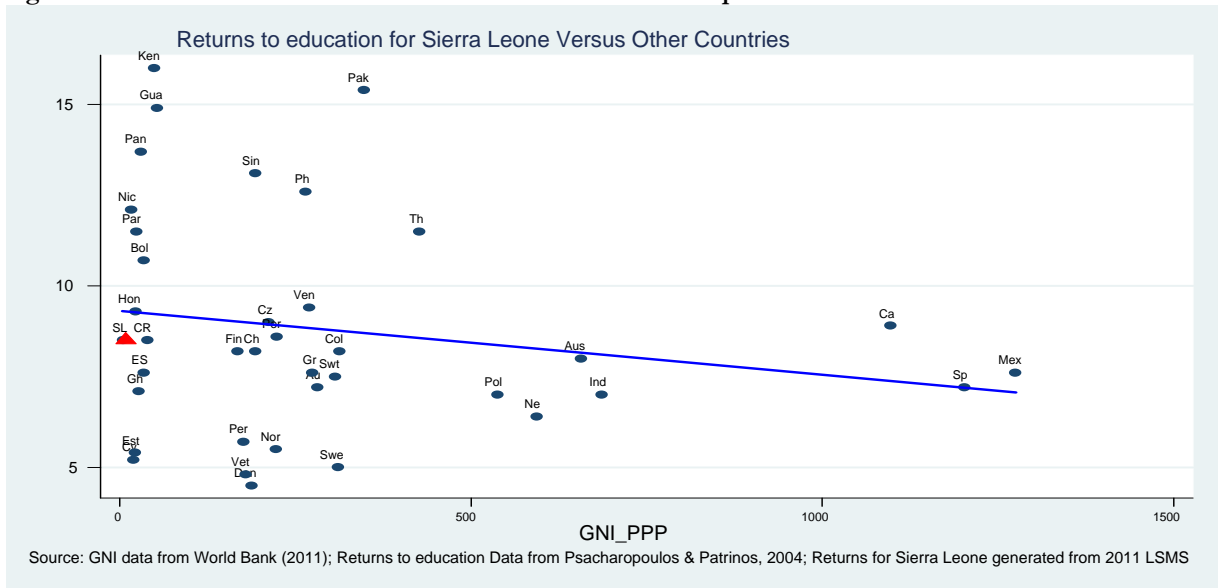


Figure 9-17 The Returns to Education of Men: Sierra Leone versus comparator countries

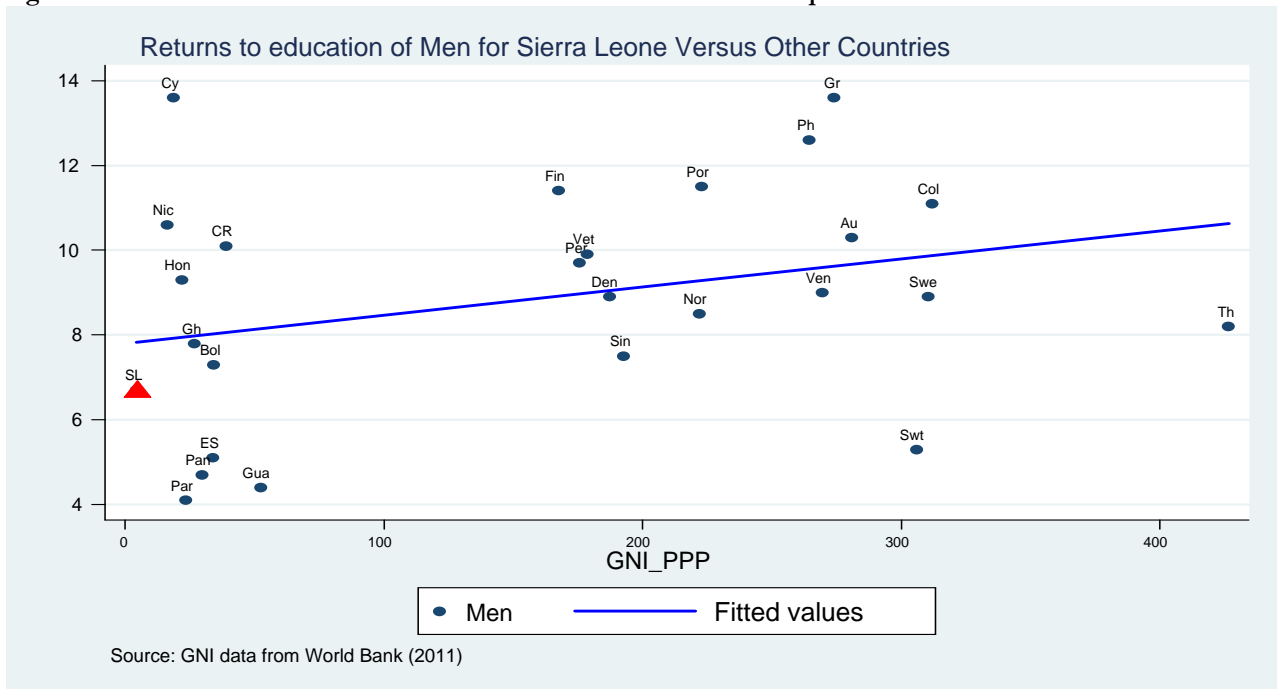
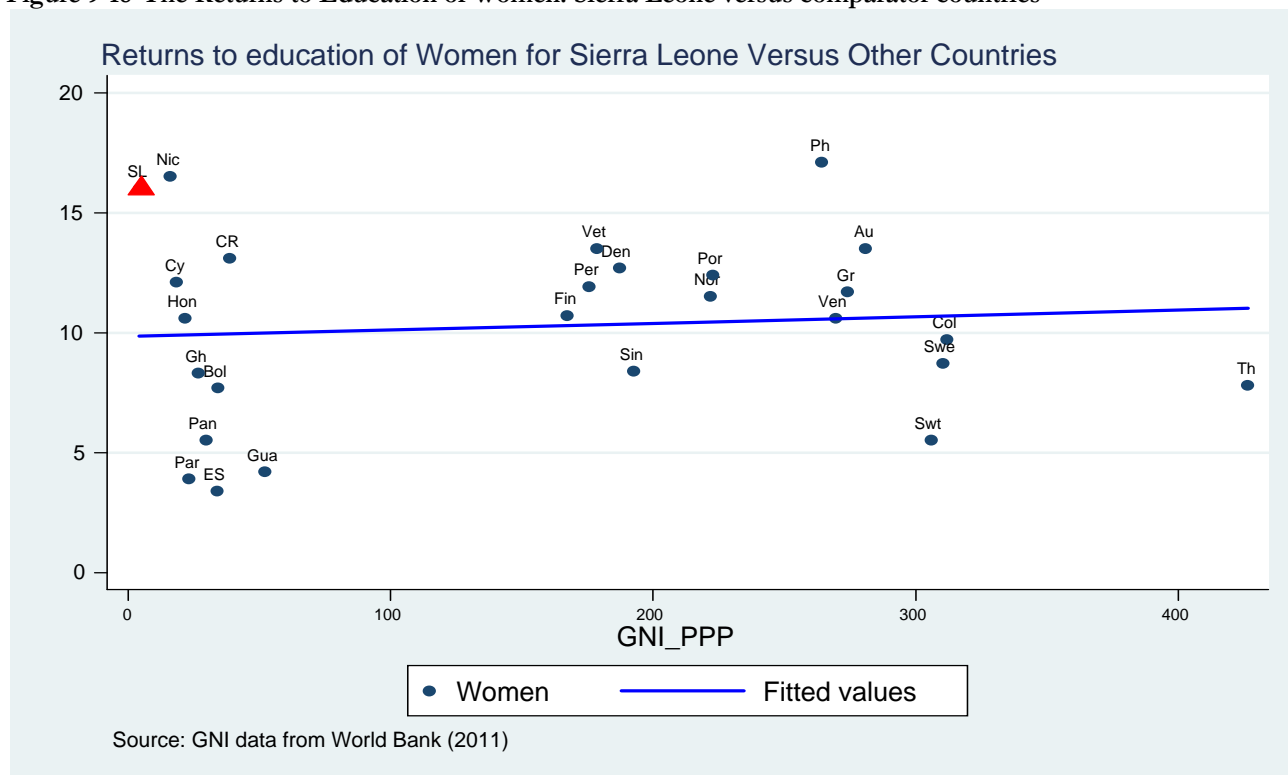


Figure 9-18 The Returns to Education of Women: Sierra Leone versus comparator countries



Generally, the results of the Mincer regression indicate a somewhat low demand, and hence a low shadow price, for human capital in Sierra Leone. As shown in Figure 9-16 through Figure 9-18, returns to education in Sierra Leone are lower than would be expected for a country at a similar level of development as measured by gross national income, although the returns to education for females are higher than expected. Pritchett (2004) finds that the returns to education for developing countries range from 8-12 percent, and the results for Sierra Leone are not above these averages. Further, the high rate of brain drain reinforces the assertion that the returns on education are relatively low.

Table 9-6 Comparative Rates of Returns to Level of Education

	Primary	Secondary	Tertiary
<i>Ghana</i>	5%	8%	18%
<i>Kenya</i>	7.9%	17.2%	32.5%
<i>Tanzania</i>	13%	19%	N/A
<i>Uganda</i>	30.2%	11.5%	24.2%
<i>Sierra Leone</i>	2.9%	2.9%	30%
<i>Vietnam</i>	2.33%	7.65%	10.7%

Source: Compilation from various constraint analyses and other sources

Although the Mincer regressions argue persuasively that the demand for educated workers is low, there is other evidence which still supports the skills gap hypothesis. For instance,

employment rates go up with each level of education completed, and rates of unemployment and discouragement generally go down.

Table 9-7 **Employment Status of 18+ years in Sierra Leone, by Level of education, 2011**

Level of education	Employed	Unemployed	Discouraged	Total
No primary	30%	17%	53%	100%
Primary (but not JSS)	34%	10%	56%	100%
JSS (but not SSS)	41%	13%	46%	100%
SSS & Tertiary non-degree	70%	12%	18%	100%
Degree and higher	90%	8%	2%	100%
Total	55%	12%	33%	100%

Source: Author's calculations from 2004 and 2011 LSMS data for Sierra Leone

It should also be noted that Mincer regressions only measure returns to years of education completed, rather than the returns to levels of knowledge acquired. Because enrolment in Sierra Leone is high and the quality of education is low, it is possible that the regressions are giving a false negative by showing low returns to years of school completed, when the true returns are low because of low literacy or skill development. To test this, we would need extensive data on wages and cognitive skills or test scores. Such data is rare in developing countries and non-existent in Sierra Leone. Furthermore, this problem is not unique to Sierra Leone, so it would also factor into interpretations of the Mincer regressions in comparator countries. Despite these concerns, we believe the regression reflects the true returns to education in Sierra Leone because it is based on the best data available and is consistent with these international comparisons.

9.1.13 Human Capital and the HRV Test

Shadow Price: For the shadow price on education to be high, we should observe a relatively high return to education. Comparing our results from the Mincer regressions to others obtained in the literature we can say that the shadow price of human capital, as represented by the return on education, is not relatively high for Sierra Leone. It should be noted, however, that despite the low overall return on education levels in the country, the return on education for women is relatively high due to gender inequities in the average level of schooling. This is also against the background of low participation rates in the formal employment market. In other words, the balance of the evidence on human capital in Sierra Leone indicates a relatively low shadow price due to a relatively low demand.

Growth Dividend: In terms of the growth tests, one notes that the key sectors for the Sierra Leonean economy have been mining, construction and the low-end services sector (retail trade). For these sectors, the growth elasticity of human capital is likely to be low. Essentially, a one year increase in school attainment for labourers in these sectors which predominantly uses unskilled labour would not increase growth significantly. Furthermore, with nearly 60% of the

workforce employed in agriculture, a significant increase in educational achievement would be unlikely to result in a large growth impact. We would therefore argue that the growth dividend of the human capital constraint in Sierra Leone is likely to be low, at least in the short to medium term.

Circumvention: We note from Mannah and Gibril (2012) that a significant skills gap exist in Sierra Leone. There is also anecdotal evidence that firms in Sierra Leone rely to some extent on imported skills. We also note that for some of the categories outlined in Mannah and Gibril (2012) report, firms can at low costs train people to undertake them. However, the Global competitiveness report (2012) also shows that Sierra Leone is one of the countries that is least likely to train its workforce. This may reflect a high turnover of staff in the presence of skills shortage. In other words, firms find it cheaper to import expatriates rather than train their own staff when the turnover is seen to be high. Putting all the evidence together therefore we will argue that there is evidence that firms try to circumvent the human capital constraint.

Non-Reliance: Generally Sierra Leone's growth in the last few years have been driven by the mining sector and to a limited extent the services sector, mainly the retail trade. These sectors are relatively low on their demand on human capital. In other words investments in these sectors are not known to have decreased in the presence of a low skilled workforce. Indeed, in the immediate post-conflict period, when Sierra Leone's human capital stock had been significantly reduced, we did see investment in the mining sector. In other words, the firms that exist in Sierra Leone today are those for which high domestic skill sets is not critical for their existence.

9.2 Health

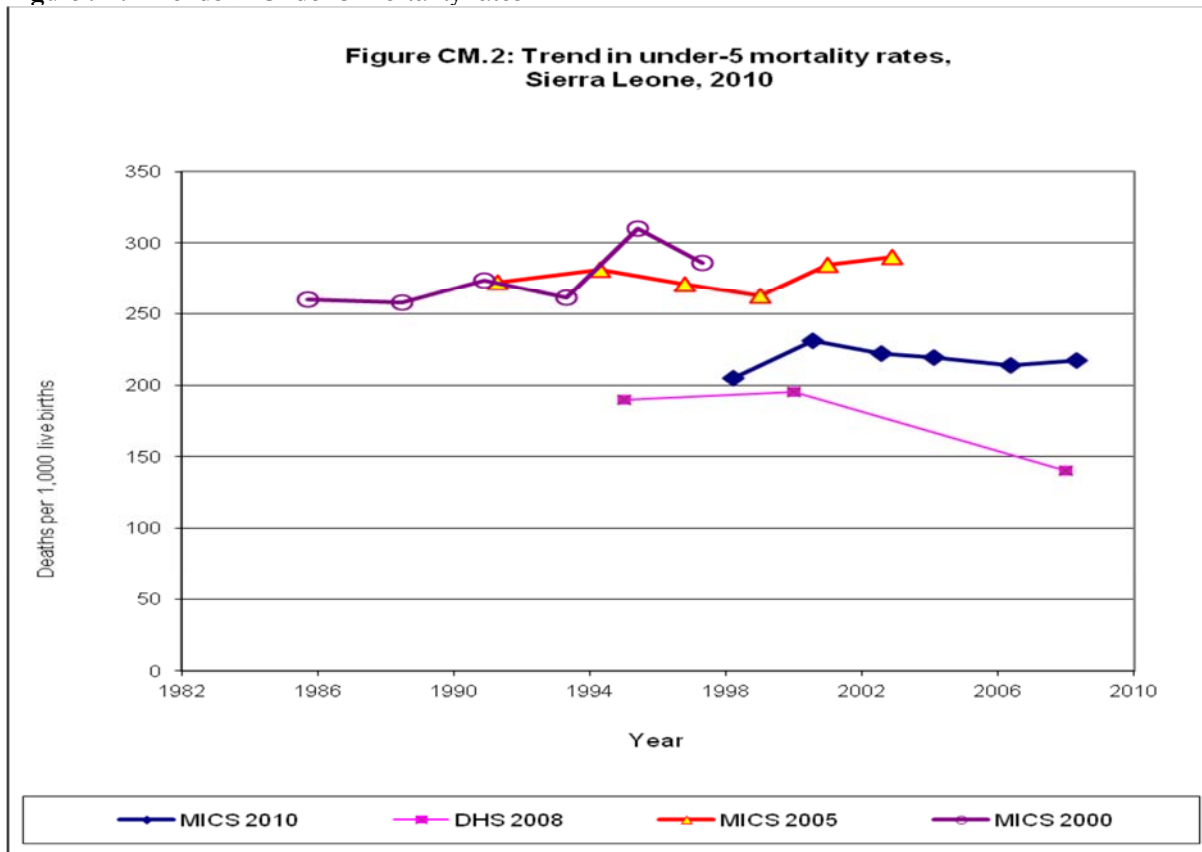
The status of health in a country is recognised as another integral component of the human capital that is necessary for economic growth. Good health raises human capital levels and thus the level of economic productivity of individuals and a country's economic growth rate. Indeed, it increases workforce productivity by reducing incapacity, debility, and the number of days lost to sick leave. In this analysis, then, we examine incidences of poor health and the levels of chronic illnesses in the country which may in turn constrain the use of human capital for sustained economic activity.

9.2.1 Child Mortality

A key goal of the Millennium Development Goals (MDGs) is the reduction of infant and under-five mortality. In particular, this goal calls for a two-thirds reduction in under-five mortality between 1990 and 2015. According to UNICEF, the infant mortality rate is the probability of dying before the first birthday expressed per 1,000 live births. Also, the under-five mortality rate is the probability of dying before the fifth birthday expressed per 1,000 live births. In the Multiple Indicator Cluster Survey (MICS) of 2010 for Sierra Leone, infant and under-five

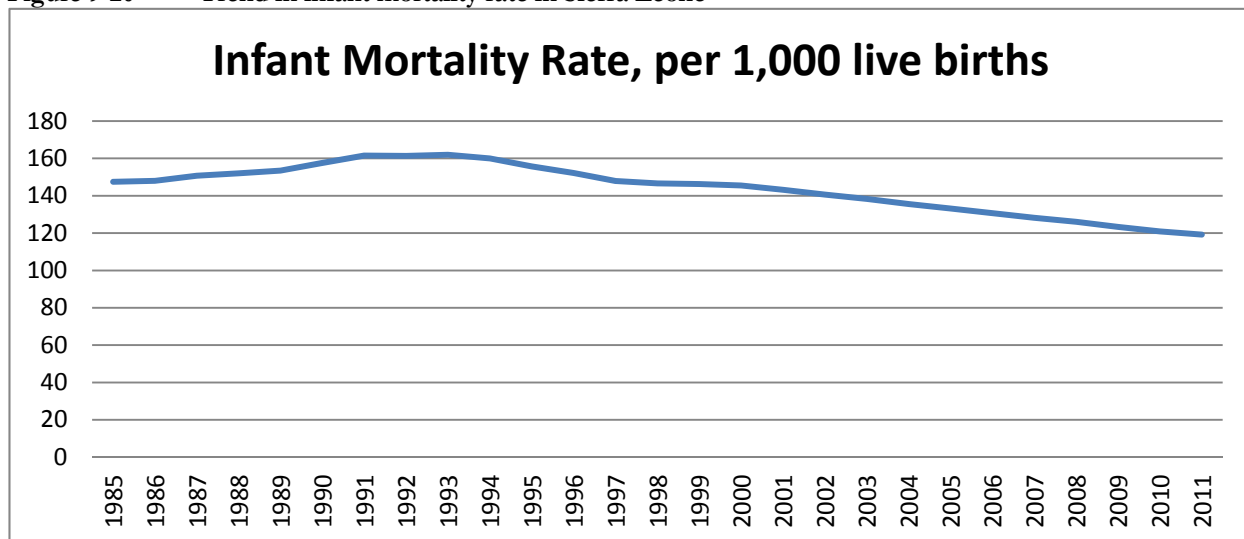
mortality rates were calculated. Figure 9-19 presents the series of under-five mortality rate estimates over time as calculated using MICS data for four different surveys. As shown in the figure below, these estimates are based on responses of women from different age groups and refer to different periods in time. The figure thus shows the estimated trend in under-five mortality rates in Sierra Leone over the past 30 years. From the figure below we can see that the under-five mortality rates in Sierra Leone rose gradually until the late 1990s (corresponding with the height of the civil conflict) and have steadily been declining since then.

Figure 9-19 Trends in Under-5 Mortality rates



Source: Multiple Indicator Cluster Survey, 2010.

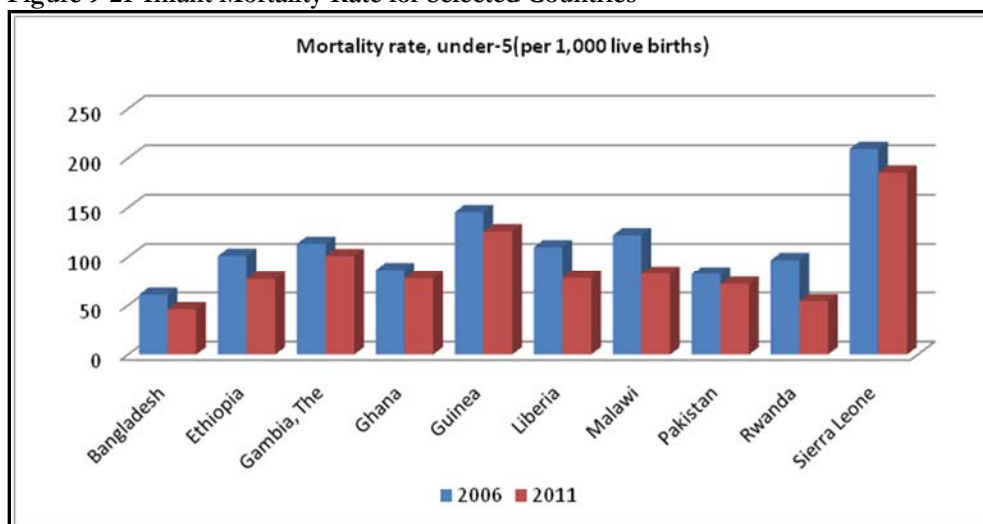
Figure 9-20 Trend in infant mortality rate in Sierra Leone



Source: World Development Indicators, 2012

Figure 9-20 shows the variation in infant mortality rates for successive periods preceding the civil conflict and after. Infant mortality was highest during the period 1990-1994. The increase in mortality during this time could well have been the impact of the peak period of the civil war. This trend has been confirmed by the Sierra Leone Demographic and Health Survey (SLDHS) which shows variations in levels in mortality levels by region but generally on a decline nationally. When compared with countries with similar GNI as shown in Figure 9-21 Sierra Leone has the highest infant mortality rate but this trend is showing positive changes when compared between 2005 and 2011

Figure 9-21 Infant Mortality Rate for Selected Countries



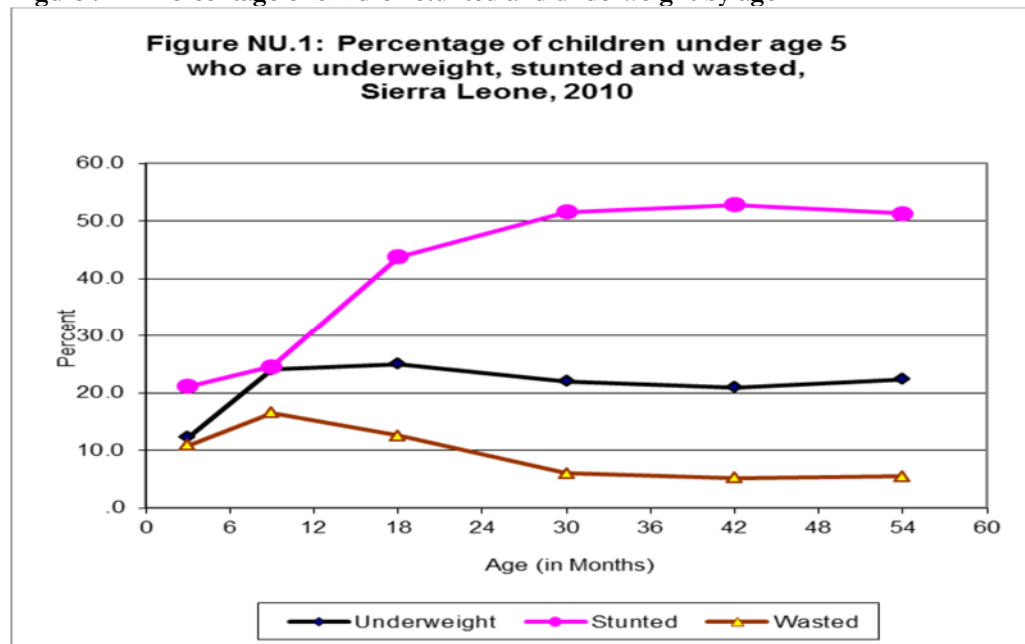
Source: World Development Indicators, 2012

9.2.2 Child Nutrition

Children’s nutritional status both reflects and influences their overall health. When children have access to adequate food supply, are not exposed to repeated illness, and are well cared for, they reach their growth potential and are considered to be well-nourished (Statistics Sierra Leone, 2011). Children that are undernourished are at the highest risk to die from common childhood ailments and, even if they survive, are likely to suffer from frequent ill health and weakened growth. In a well-nourished population, there is a reference distribution of height and weight for children under age five. Under-nourishment in a population can be gauged by comparing children to a reference population.

According to the MICS, children in the Northern Province are more likely to be malnourished than children from other regions in Sierra Leone. Also, those children whose mothers have secondary or higher education are generally less likely to be malnourished compared to children of mothers with only primary or no education. Boys are more likely to be underweight and stunted than girls. Again, according to the MICS the highest levels of underweight exist in children aged 12-23 months, while the highest levels of stunting are found among children aged 36-47 months as shown in Figure 9-22.

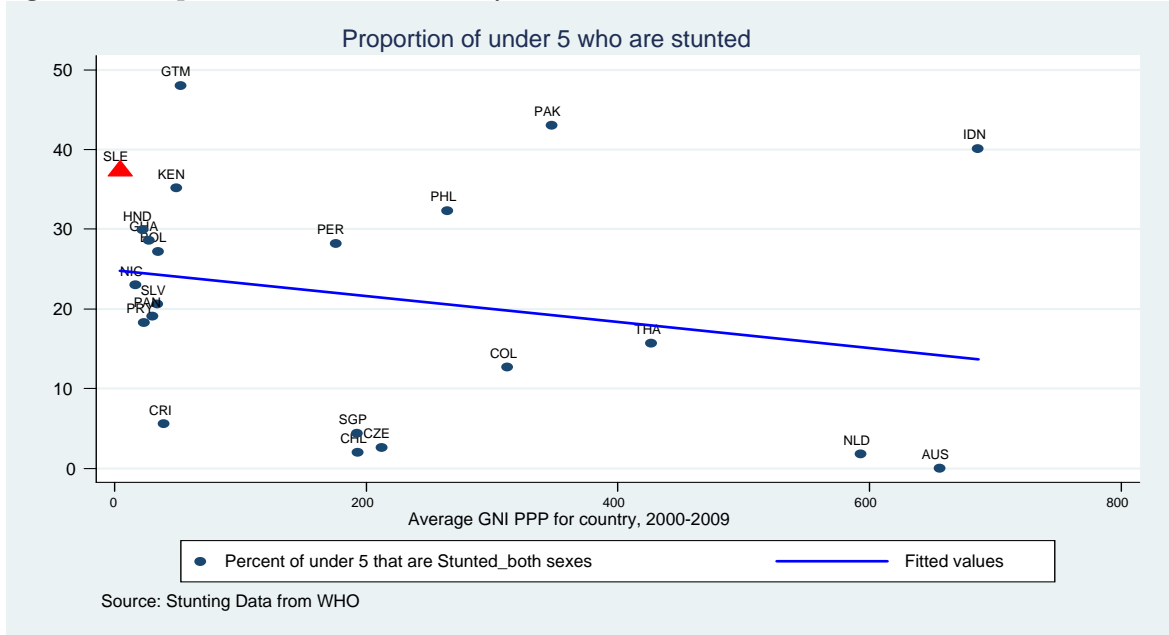
Figure 9-22 Percentage of children stunted and underweight by age



Source: Statistics Sierra Leone, 2011

It is not unusual for levels of malnutrition to rise among children above five months of age; this pattern is expected and is related to the age at which the recommended introduction of complementary (solid, semi-solid or soft) foods begins. The food that is given to the infant is often inadequate in terms of quality and quantity (frequency) and the infant can be exposed to contamination as a result of poor food hygiene practices; all of these issues can result in malnutrition. In particular, contaminated water causes diarrhea and is therefore a leading contributor to poor nutrition in children due to poor absorption of nutrients in the child's digestive system. Almost one in four children under the age of five in Sierra Leone is moderately or severely underweight (22 percent) and eight percent are classified as severely underweight. Almost one in two children (44 percent) is moderately or severely stunted (i.e., too short for his age) and eight percent are moderately or severely wasted (i.e., too thin for their height).

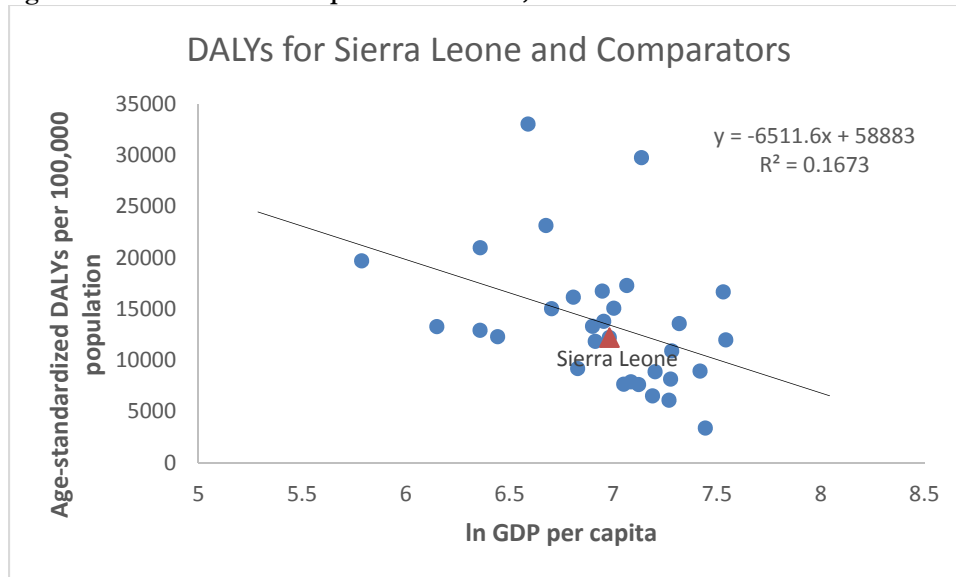
Figure 9-23 Proportion of stunted under-5 by countries



9.2.3 The Disability-adjusted life year

The disability-adjusted life year (DALY) statistic measures overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. Although the total burden of disease as measured in DALYs for all diseases was very high in Sierra Leone immediately following the war, it has since retreated to slightly less than the average for its GDP per capita. This suggests that, despite high mortality rates and stunting in children under 5, Sierra Leone's total burden of disease is not significantly greater than similar countries.

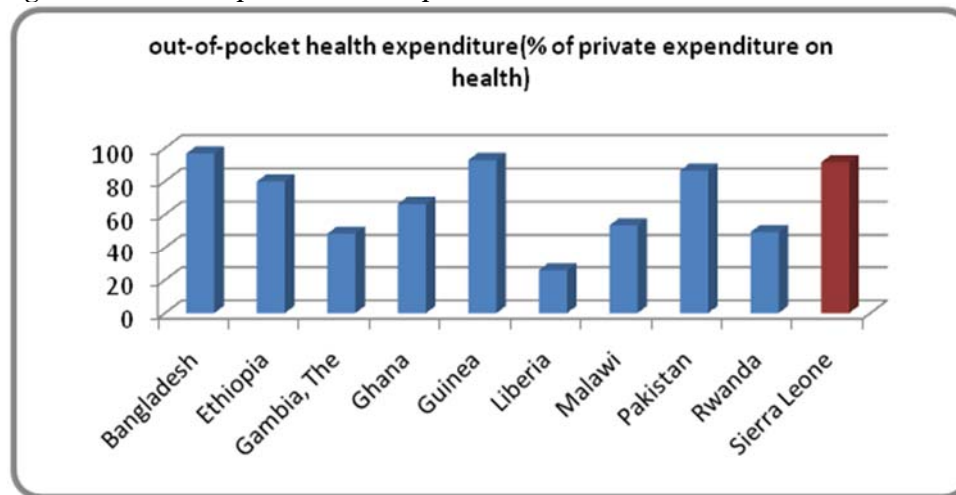
Figure 9-24 DALYs for comparator countries, 2010



Source: Institute for Health Metrics and Evaluation, Global Health Data Exchange

The out of pocket expenditure as a percent of total private spending on health is also relatively high in Sierra Leone compared to other countries. A major cause of these poor showing in health measurements have been as a result of the ten years of civil conflict which the country endured as this caused disruptions of the health system, including damage to the physical infrastructure, loss of skilled health professionals and, through the wider economic effects, reduction in the resources available to the health sector. The conflict also resulted in changes in population patterns, and specific health problems ranging from mental trauma to physical disability. There were displacements and movements of people from rural conflict zones to urban areas and as such the District headquarter towns and the Western Area became densely populated. This put a lot of stress on already inadequate health care services.

Figure 9-25 Out-of-pocket health expenditure



Source: World Development Indicators, 2012

Table 9-8 Business Impact of Diseases

	Business impact of malaria	Business impact of tuberculosis	Business impact of HIV/AIDS
<i>Bangladesh</i>	5.5	5.3	5.6
<i>Ethiopia</i>	4.2	3.7	3.7
<i>Gambia, The</i>	3.4	4.5	4.8
<i>Ghana</i>	2.9	4.1	4.0
<i>Guinea</i>	2.8	3.4	3.3
<i>Liberia</i>	3.9	4.4	5.2
<i>Malawi</i>	2.5	3.4	2.6
<i>Pakistan</i>	4.1	4.2	4.5
<i>Rwanda</i>	4.2	4.4	4.0
Sierra Leone	2.0	4.1	4.3

Source: World Competitiveness Report 2012-2013

When benchmarked with comparators in Table 9-8, Sierra Leone scores the lowest on the impact of malaria on businesses. However, on the impact of tuberculosis on businesses, Sierra Leone has a reasonably high score and is at par with the comparator countries average score of 4.15 out of a maximum score of 7. The same could be said on the business impact of HIV/AIDS as Sierra Leone scores slightly higher than the comparator countries average of 4.2. The impact of malaria, tuberculosis, and HIV/AIDS on competitiveness depends not only on their respective incidence rates but also on how costly they are for business (World Competitiveness Report, 2012). So, the direct cost to businesses as a result of malaria, tuberculosis and HIV/AIDS doesn't seem to be higher than comparator countries.

Despite all of these, we note that Sierra Leone is turning the corner and making notable improvements in eradicating and controlling various diseases through different health programmes. Over the last years there have been several health initiatives to address these issues to improve access to health services and reform of the health workforce. For example, in April 2010 the government launched a major initiative to provide free health care to pregnant women and children under the age of 5 in the whole country.

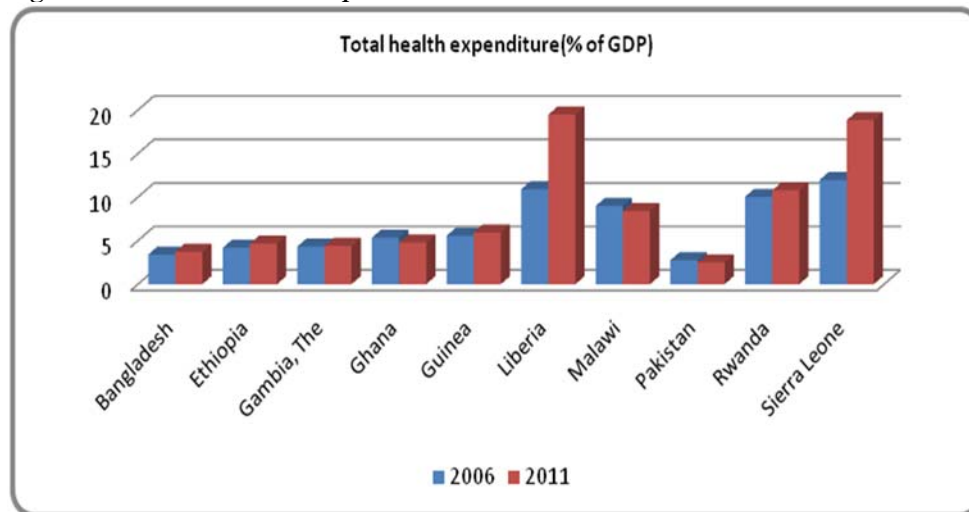
The key objective of this initiative is to turn around the country's unenviable position as one of the most risky countries in the world for a woman to give birth. Prior to the introduction of this scheme, one woman out of every 112 dies giving birth in Sierra Leone according to the World Bank. This estimate is almost 3 times as experienced in Ghana for instance. Also, it was estimated that one in five children die in the country before they celebrate their fifth birthday. The scheme has already recorded some early successes. First, according to Ministry of Health estimate more than five times as many children under - five years are being treated for malaria with

the appropriate medication now than it was in 2008. The number of public hospitals in the 12 districts in Sierra Leone equipped to provide obstetric and neonatal care has increased from zero in 2008 to five in 2012 (Ministry of Health Bulletin, September, 2012). Also, it is estimated that health care usage has increased by up to 60% as consultation fees and other medical costs are no more considered to be an obstacle.

Despite some improvements in the free health care scheme, the implementation as a whole has not been without challenges. There have been reports of drugs not getting to their final destination because of poor logistical arrangements. In a recent report published in 2012 by the civil society group, Health For All, it was stated that poor infrastructure is preventing the scheme from achieving its intended national coverage. It stated that many pregnant women cannot get to designated hospitals to access health care because of flooded unpaved roads while others have to endure tumultuous journeys using either a motorbike or hammock. This means for instance that the critical use of ambulances for emergency, which is part of the scheme, is redundant. Moreover, lack of power and pipe-borne water, and available blood for emergency transfusions are posing serious risks to the scheme as more often it leaves pregnant women in need of caesarean sections and children with malaria inadvertently unattended to.

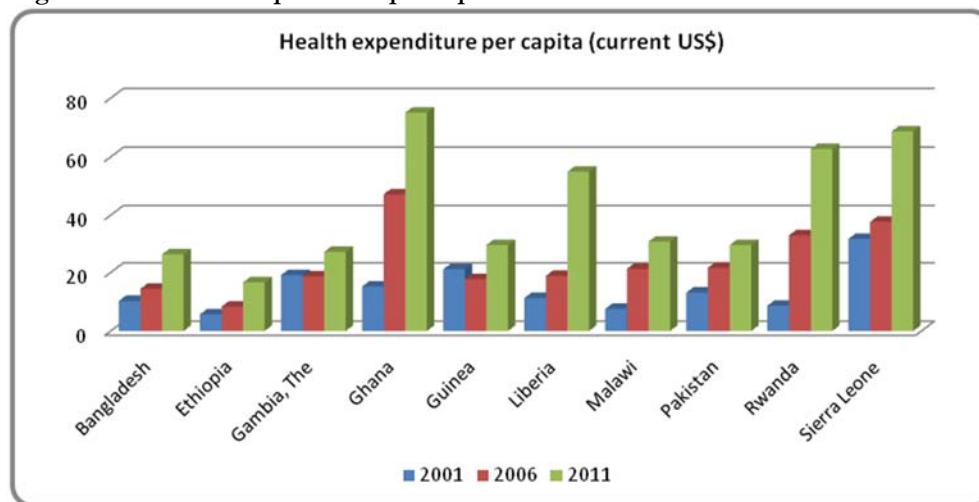
The scheme has presented the opportunity for the country's health care system to be gradually strengthened. As presented in Figure 9-26, the total health expenditure as a percentage of GDP has been on the rise in the past five years and above all comparator countries except Liberia. Similarly, health expenditure per capita is on the increase over the decade and only below Ghana in 2011 when compared with comparators. Further, in order to holistically address the health condition of the people a national health policy has been developed to provide clear direction for the health sector going forward. The health policy includes guidelines related to both the reconstruction of the health sector and the reform and development of the sector. The overriding aim of the policy is to maintain and improve the health of all Sierra Leonean residents within the country while ensuring that all citizens have access to basic good quality health care.

Figure 9-26 Total Health Expenditure



Source: World Development Indicators, 2012

Figure 9-27 Health expenditure per capita



Source: World Development Indicators, 2012

9.2.4 Health and the HRV Test

Shadow Price:

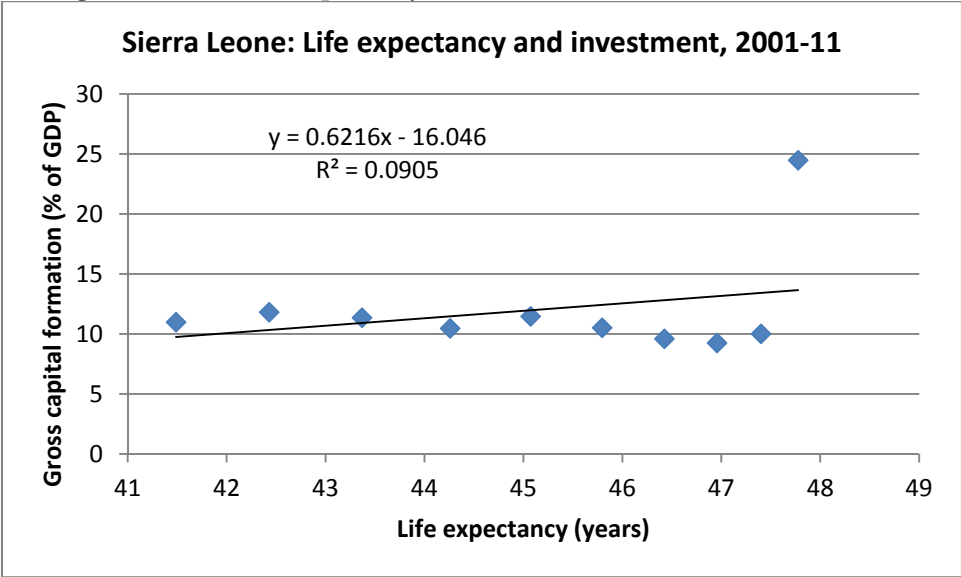
The shadow price of the health sector manifests itself in a few ways that all add up to a high shadow price. First and foremost, the out of pocket expenses are high for the average Sierra Leonean to provide healthcare for themselves and their families. This shadow price can be so high in some cases that lives are lost when curable diseases are not met with the expenses required to heal ailing people of such. Secondly, as seen above, the business impact on malaria, tuberculosis and HIV in Sierra Leone according to the World Competitiveness Report 2012 – 2013 shows that it is low for malaria (2), but in the midrange to high for both tuberculosis (4.1) and HIV (4.3) as contrasted with comparator countries. The costs of undernourishment that lead

to stunting and other related deformities is lifelong and adds to the shadow price of the health sector as these unfortunate undernourished children require special treatments for the rest of their lives in most cases. Finally, the days lost on average due to illness at 21 sick days, is also seen to be high.

Growth Dividend

In as much as Sierra Leone ranks reasonably low in some social indicators, which is not unexpected for a post-conflict country, there have been recent improvements in those measures. The direct impact of diseases on businesses is not unusually high using the World Competitiveness Report of 2012. However, as shown below in Figure 9-28, private investment rates are not significantly correlated with improved health conditions and life expectancy in Sierra Leone.

Figure 9-28 Life expectancy and investment



Source: World Development Indicators, 2012

Circumvention

The use of traditional means to healing illnesses, especially in provincial towns and among a large concentration of citizens in the capital Freetown, is an example of how Sierra Leoneans try to circumvent the constraint with regard to health costs. Some firms also have their own in-house infirmaries to treat their sick employees, while others provide insurance coverage for their staff as a means of circumventing the high prices of health care in Sierra Leone.

Non-Reliance

While there may not be specific data to show which companies rely on health care for their employees or not, the circumvention example given above with regard to insurance and self-treating infirmaries within some firms is an indication that businesses rely on the good health of their employees. Firms will survive and thrive in an environment where diseases are prevalent

when they can quickly heal their employees, while those that cannot may end up losing such employees, and if they are key to the business, may end up also losing their businesses.

Providing access to public health would definitely improve living standards, but it is unclear the extent to which this could result in higher private investment and broad-based growth. Increased income-generating opportunities could also improve household nutritional status and health. Although poor health could reduce returns for some private agents, it does not appear to rank as a binding constraint to broad-based economic growth at this moment in time in Sierra Leone.

10 Infrastructure

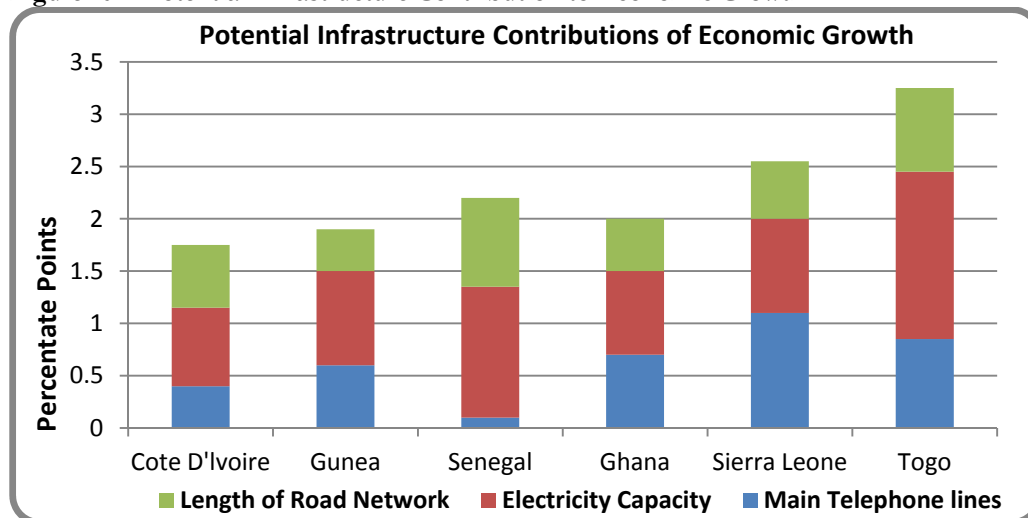
10.1 Infrastructure-Growth Nexus

Good infrastructure is important for economic growth, as it efficiently connects firms to their customers and suppliers and enables the use of modern production technologies. Additionally, a strong infrastructure enhances the competitiveness of an economy and generates a business environment conducive for economic growth and development.

Investment in water and sanitation, energy, information & communication technology, roads and transport infrastructure will improve and promote trade, and hence growth, reduce poverty and improve access to social services. Transport infrastructure plays a major role in the economy of Sierra Leone, especially in the area of distribution of agricultural produce and other goods and services including exports and imports. Roads are large contributors to agriculture and food security, access to social services and the country's economy in general. Good roads improve land transportation systems, which engender faster and cheaper access to markets and financial service providers as well as enhance the contribution of tourism to economic growth and development. A policy research paper by Cesar Calderon (2009) evaluated the impact of the accumulation and quality of infrastructure on per capita growth for 39 African countries and concluded that the infrastructure stocks and quality of their services can boost economic growth.

From the Calderon paper, Figure 10-1 shows the potential contribution of infrastructure components (roads, electricity and telephone connectivity) to economic growth, measured in percentage points. It indicates that economic growth in Sierra Leone could be 2.5 percentage points higher if infrastructure was improved to the level of the African leader, Mauritius.

Figure 10-1 Potential Infrastructure Contribution to Economic Growth



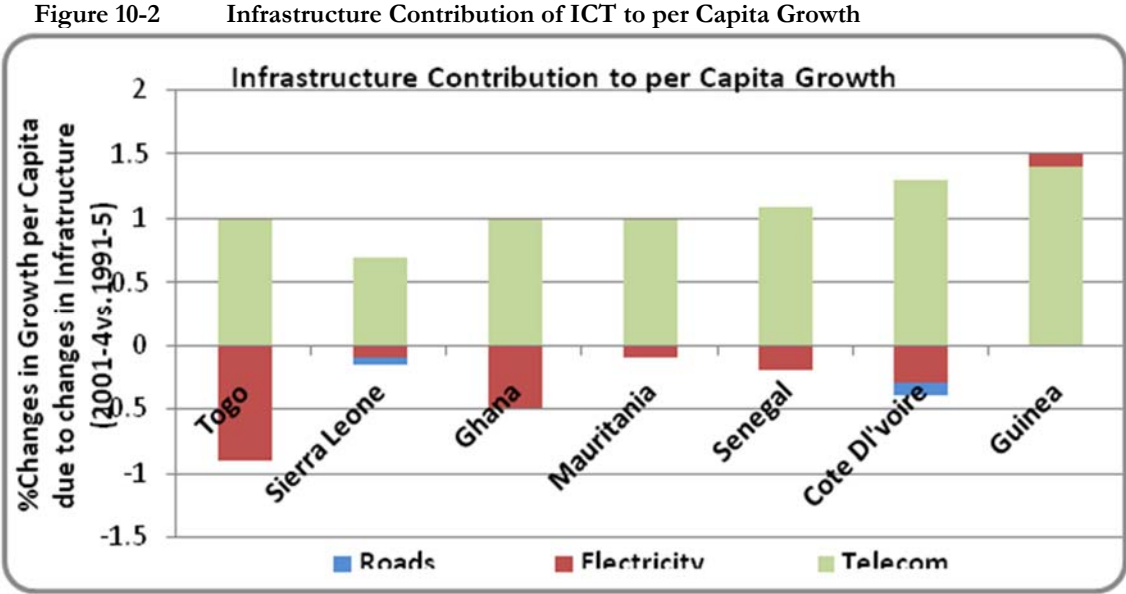
Source: Calderon, 2009

10.2 Overview of Sierra Leone’s Infrastructure

Sixty percent of the country's population live in rural communities with subsistence agriculture and small businesses as the main economic activities. Investments in infrastructural development such as roads, energy, water, information and communication technology is critical for improving agricultural productivity, small business growth as well as human development.

The ensuing sections show that despite recent investments in infrastructural development, Sierra Leone's infrastructure remains grossly underdeveloped to support economic growth, particularly in these rural areas. The overall condition of the national road network and general transportation infrastructure remains weak; power generation and distribution systems are derelict with conditions that are far below requisite levels to support existing demand. The water supply systems are insufficient to meet the demands of rapidly growing urban populations, while many rural areas do not have access to safe water. Despite private investment in the ICT sector, particularly for GSM technology, internet connectivity is frequently disrupted and where it remains connected, is slow.

For many countries in Africa, including Sierra Leone, the present infrastructure contribution to per capita economic growth has been mainly due to improvements in ICT (telecommunications) sub-sectors, as shown in Figure 10-2.

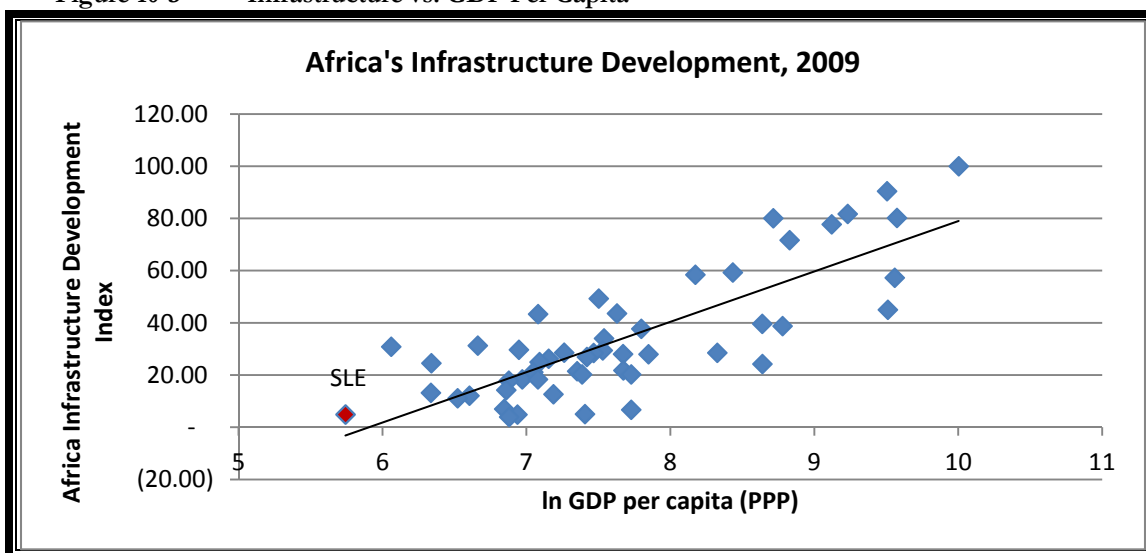


Source: Calderon, 2009

Although Sierra Leone’s level of investment in infrastructure puts the country in the bottom six of 53 countries in Africa, Figure 10-3, which plots the Africa Infrastructure Development Index

(AIDI)¹⁴ scores against the natural log of GDP per capita for each country, indicates that Sierra Leone has better infrastructure quality than expected given its GDP per capita.

Figure 10-3 Infrastructure vs. GDP Per Capita



Source: Africa Infrastructure Development Index, African Development Bank, 2011

10.3 Power

10.3.1 Access to Electricity

Sierra Leone has one of the lowest access rates to electricity in the world. In 2011, with the exception of the capital city and three other district headquarter cities; the rest of the country did not have access to grid-based electricity supply. Even in the provincial cities that have power supply grids, the level of penetration and access remains relatively low, with supply limited to the major urban centres that comprise less than 25 percent of the total population of the provincial districts. As shown in Table 10-1, only about 9 percent of the country's population has access to grid-based power supply.

Table 10-1 Trend of Access to Grid Connected Electricity in Sierra Leone (2006 - 2011)

	2006	2007	2008	2009	2010	2011
Freetown	38,362	47,281	53,126	64,306	67,422	73,551
Bo – Kenema	8,762	9,078	9,455	10,180	11,302	12,593
Makeni customers	305	430	521	596	602	1,040
Total Customers	47,429	56,789	63,102	75,082	79,326	87,184
Population connected to grid	284,574	340,734	378,612	450,492	475,956	523,104
% Access	5.5	6.4	7.4	8.7	8.2	8.7~9

Source: NPA Management (2010)

¹⁴ The AIDI is measured across four infrastructural components – transport, electricity, ICT and Water & Sanitation; that affects productivity and economic growth. It provides an in-depth information on the status and progress of infrastructural development in African countries.

The limited access to grid-based electricity supply has a number of implications. First, the remaining segments of the population that lack access will resort to other sources of lighting and domestic energy sources such as kerosene lamps, candles, battery-powered lanterns and firewood (which in turn may have adverse impacts on respiratory health, CO2 and deforestation/wood stocks). Table 10-2 shows the primary and secondary sources of power for lighting by households surveyed in Sierra Leone in 2011.

Table 10-2 Source of Power for Household Lighting

Source of Power for Lighting	Percentage of Households Using as: (%)	
	Primary Source	Secondary Source
Grid	15.6	3.8
Generator	0.6	1.5
Kerosine	36.6	17.6
Gas	0.2	0.2
Solar	0.1	0.2
Batteries	44.4	56.8
Candles	0.5	7.5
Firewood	0.4	2.2
Other	1.6	10.2
Total	100.0	100.0

Source: Author's calculations from SLIHS, (2011)

Another problem associated to that of limited access is that of reliability in power supply for people and businesses connected to the grid. By 2009, the country was recording an average number of 46 days of power outage over the period of a year on which an outage took place. This is more than four times higher than the average of 11 days for low-income fragile countries. These outages have costs to the economy, particularly for businesses and households that do not have any form of backup power supply, in terms of lost output and/or preservation of inventory that relies on power supply. Based on this estimated number of power outage period, the estimated cost of these outages to the economy was approximately US\$ 17 Million or 0.7 percent of the GDP for 2009. This estimate was derived taking into account the fact that about 40 percent of those on the power grid do not have any form of backup power supply and that these outages imply a complete halt in production and/or the loss of inventory whose value depends on uninterrupted power supply. This indicates a high shadow price paid by the economy as a result of the power constraint.

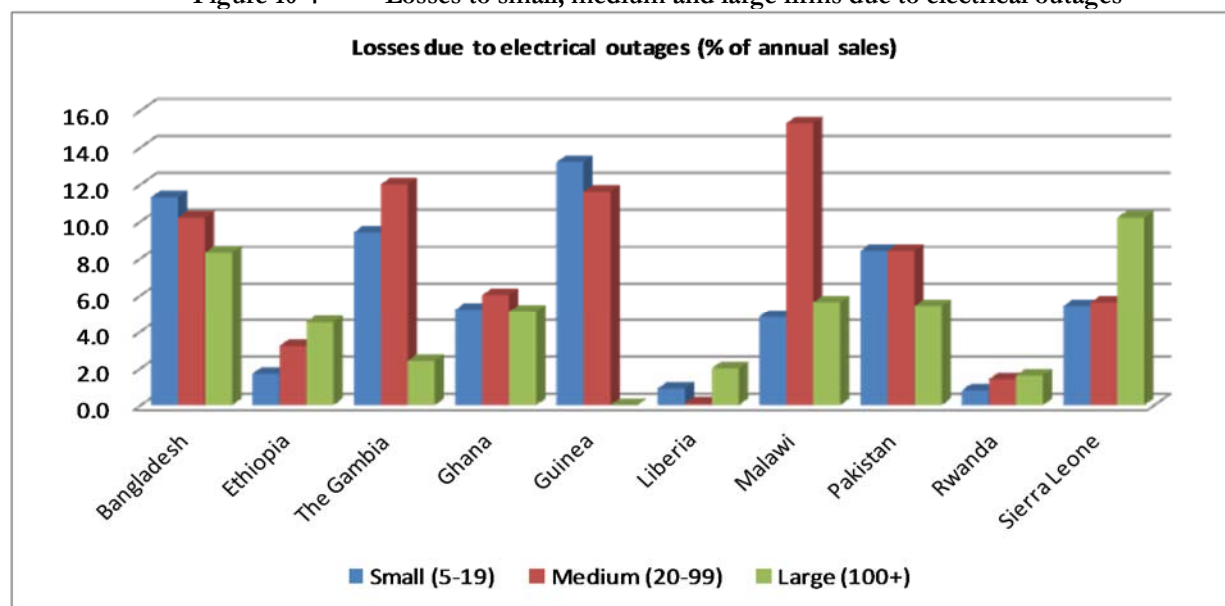
Table 10-3 Sierra Leone's standing in key areas of power access as at 2011

Area	Unit of Measurement	Sierra Leone	LIC (Fragile)	LIC (Non-Fragile)
<i>Access (National)</i>	% of Population	7.0	15.0	33.0
<i>Access (Urban)</i>	% of Population	35.0	57.6	86
<i>Access (Rural)</i>	% of Population	3.9	4.0	4.1
Power Outages	Days per Year	46	11	10
<i>Generation Capacity</i>	MW per Million People	13	46	20
<i>Electricity Consumption</i>	KWH per Capita	14	165	107

Source: World Bank: Africa Infrastructure Country Diagnostic 2011

The World Bank Enterprise Survey of 2009 further highlighted the cost to private business of irregular electricity supply. Figure 10-4 shows that between 5 percent and 10 percent of annual sales was lost by firms due to electrical outages. Though the hydro has improved the power generated in the country since 2010 it still falls short of total demand. The hydropower is seasonal with fluctuating generation between the two seasons, and consequently has not changed the loss to firms in the country.

Figure 10-4 Losses to small, medium and large firms due to electrical outages



Source: World Bank Business Enterprise Survey (2009)

In addition to loss of output in the economy, inadequate supply of and access to electrical power also causes households to utilise other forms of fuels to generate lighting for domestic use. The Sierra Leone Integrated Household Survey (2011) indicates that it costs households that are not connected to any grid an average of US\$189 per year to provide lighting from other sources like kerosene lamps, battery-powered lanterns, candles and firewood. This is about 38 percent higher than the average US\$137 per year spent on lighting from the main grid electricity supply. These estimates indicate that in 2011, it cost households with no access to grid electricity about

US\$36.4 Million (1.26 percent of GDP) more to generate domestic lighting from other sources than it would have been if it was derived from the main grid. This is further indication of a high shadow price for inadequate supply and access to power.

10.3.2 Demand-Supply Gap Analysis

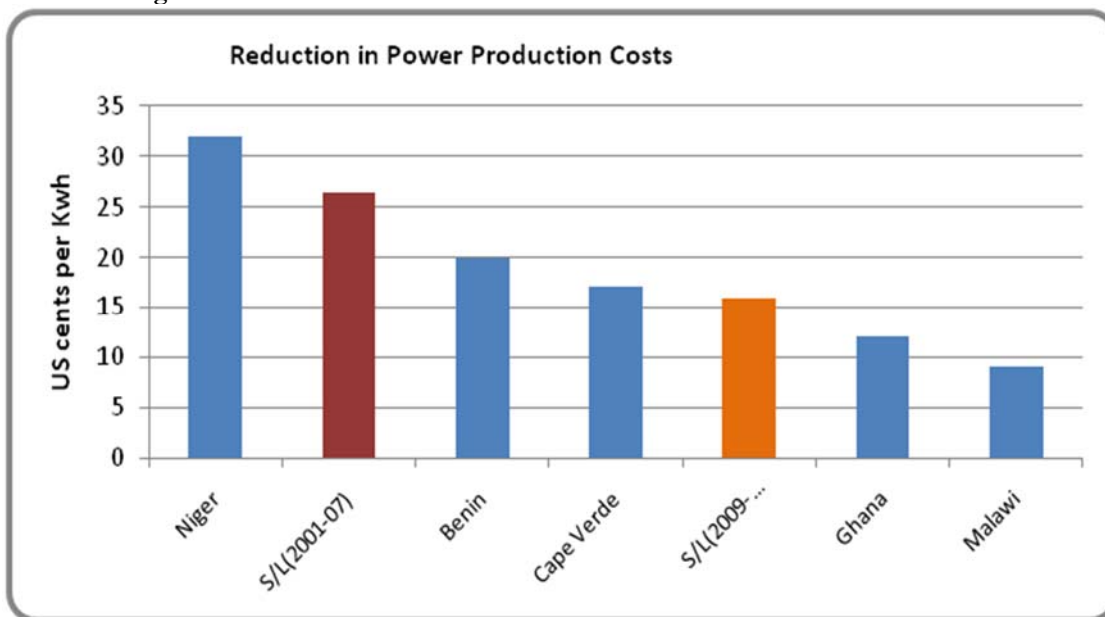
The demand for electricity in the capital city and other urban centres around the country is currently estimated at 236 MW while the total national electricity generation capacity is 93.75 MW. The difference is actually provided by private generation of power. This demand is expected to increase as urbanization and industrialization trends continue on an upward trajectory. The conservative medium term estimates of energy required by the 3 largest mining companies in the country range between 650MW and 850MW. While self-generation of electricity is now common in the mining industry, this is necessitated by the lack of adequate and reliable power supply. One could therefore argue that an increase in grid-based power generation could encourage them to move away from vertical integration in their production processes to make room for separate private investments in the generation and distribution sub-sectors.

According to the World Bank growth poles diagnostic in Sierra Leone, the relatively low supply of power levels have implications for existing demand, as well as for suppressed potential demand. The country's energy demands are massively underserved with estimates of current demand continually increasing. As the country develops and becomes increasingly industrialized, especially with the development of large-scale mining projects and the establishment of value-added manufacturing companies for raw materials produced in this country, the demand for energy will continue to increase.

10.3.3 Power Production Cost and Tariffs

For many years prior to 2009, Sierra Leone's power generation systems were based on thermal sources - the use of high-speed diesel generators. These generation methods are typically associated with higher costs than other thermal sources such as Coal and Heavy Fuel Oil; and significantly higher than renewable power generation sources like hydro and solar. Prior to 2009, higher power production costs, mainly caused by increased costs for fuel, lubricants, machine maintenance and repairs, translated into higher end-user tariffs shows power production costs before 2009, when the hydro power plant was commissioned and after it was commissioned. It shows a significant drop from about US\$ 0.32 to about US\$ 0.17 per Kilowatt hour. This was because the introduction of the hydro plant meant that the main costs component of the thermal plant power production like high fuel costs became redundant and this in turn meant that overall power costs became lower and ultimately this fed in into the new tariff rates. Consequently, it has been estimated that NPA made a savings of at least \$2.3 million from power production costs (REF).

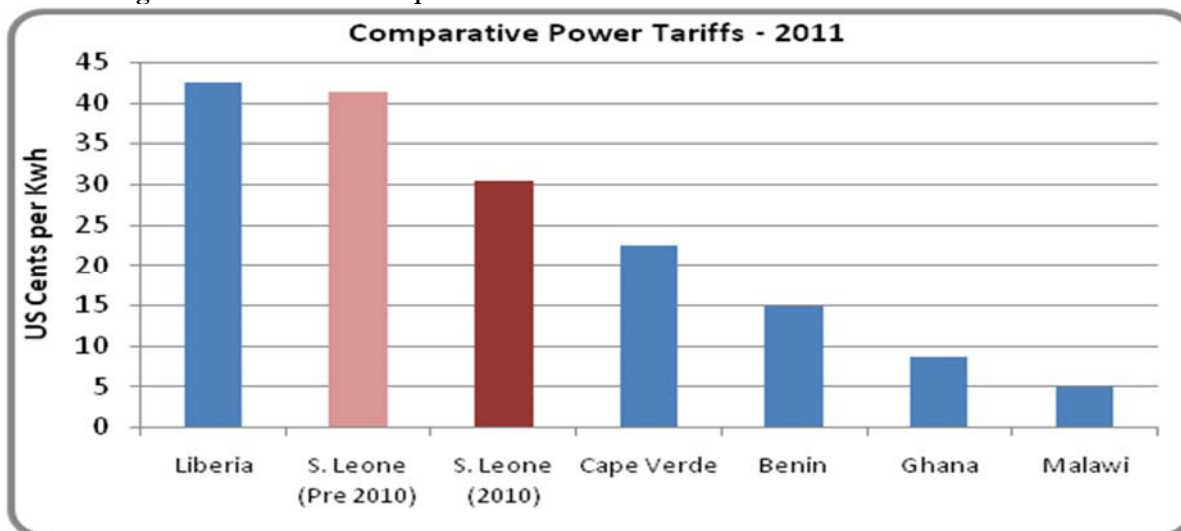
Figure 10-5 Power Production Costs in Selected Countries



Source: Briceno-Garmendia and Shkaratan, 2010

Between 2002 and 2008, customers paid between US\$0.21 and US\$0.41 per kWh. With the completion of Bumbuna hydropower plant in 2009 and generation of hydroelectricity thereafter average production costs of power reduced and translated into reduced tariff for customers. Customers paid about US\$0.41 - US\$0.30 kWh (Sierra Leone Infrastructure Diagnostics, 2011). Figure 10-6 shows the drop in end-user tariff for consumers in Sierra Leone and other African countries. Though there was a reduction in power end-user tariff in Sierra Leone between 2008 and 2009 as a result of the drop in average power generation costs, the resultant tariffs remained higher than many other African countries as shown in the figure below.

Figure 10-6 Comparative Power Tariffs - 2010

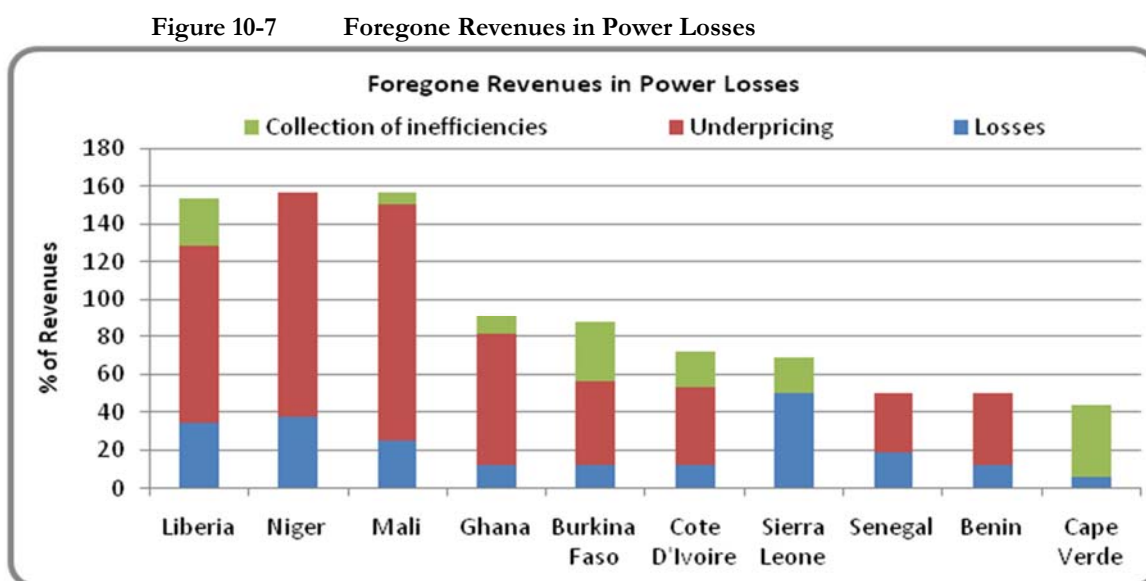


Source: Briceno-Garmendia and Shkaratan, 2010

10.3.4 Hidden Power Utility Operating Cost

The National Power Authority, which is the State power generation, transmission and distribution agency, has experienced several problems in the operation of an effective and efficient power services in the country. As well as management problems affecting efficiency and effectiveness in the discharge of its responsibilities, the authority suffered huge losses of its equipment during the civil war: some destroyed by armed combatants while some perished due to lack of maintenance and repairs that could not be done as a result of insecurity. Even after the war, financial and cash flow challenges have prevented much needed maintenance, repairs and even upgrade of key assets. The poor maintenance and repairs of the ageing thermal plants resulted in high diesel consumption and increased operational cost.

Figure 10-7 shows a comparative country analysis of revenues foregone (lost) by power utilities due to problems associated with: (i) under-pricing; (ii) collection inefficiencies; and (iii) technical losses.



Source: World Bank: Africa Infrastructure Country Diagnostic, 2011

Figure 10-7 shows that revenue loss as a result of under-pricing presently is not a problem for Sierra Leone compared to other African countries. However, according to Pushak and Foster (2011: p), under-pricing has historically been a challenge, and sustainable cost recovery will be difficult:

“The already high end-user power tariffs can cover the total cost of power production only if sufficient and reliable hydropower supply is secured. If, however, the need to rely on emergency thermal generation continues into the future, it will inevitably make cost recovery vulnerable to high generation costs and fluctuations in fuel prices. Cost reduction is contingent upon expanding hydropower resources, increasing the customer base, and securing sustainable

revenue flow, as well as exploring the option of importing power from other countries in West Africa.”

At the moment, the priority facing the utility is to increase generation of power to meet the estimated demand both in the immediate and medium terms and also enable wider access of the population. Further, the utility has to address other equally important issues to meet with increased generation like (i) inefficient transmission and distribution systems of generated power resulting to technical losses and (ii) inability to collect revenues from post-paid credit metres. In 2009, the cumulative effect of the different operating inefficiencies led to a revenue shortfall of about US\$ 21 Million; with 45 percent of these accruing to technical line losses, 12 percent due to uncollected electricity bills and the remaining 43% being loss due to under-pricing. The estimated losses increased significantly in 2010 to about US\$ 33 Million, as the transmission network could not accommodate the increased generation from Bumbuna, leading to additional technical losses. NPA’s inadequate revenue collection and high labour costs have precluded the necessary upgrades to the grid. The number of connections per employee, including non-active customers in NPA is low and just about 18%, meeting the low income countries benchmark. Table 10-4 provides an analysis of the hidden costs borne by the National Power Authority.

Table 10-4 National Power Authority: Hidden Costs vs. Revenue Loss

Year	Power Billings (GWh/Yr.)	System Losses (%)	Collection Ratio (%)	Cost Recovery Benchmark (US\$/kWh)	Average Revenue (US\$/kWh)	Average Effective Tariff (US\$/kWh)	Million US\$ per Year	Percent of Revenues (%)
2003	69	33	93	0.3	0.24	0.22	12	74
2004	53	33	99	0.3	0.23	0.22	9	69
2005	33	33	90	0.34	0.29	0.22	8	81
2006	29	38	89	0.47	0.23	0.29	11	161
2007	28	29	89	0.48	0.18	0.29	9	178
2008	-	42	50	-	-	0.41	-	-
2009	73	45	88	0.44	0.21	0.36	21	141
2010	226	45	88	0.28	0.21	0.31	33	69

Source: World Bank (2005, 2007) National Power Authority (2009, 2010)

In 2011, revenue forgone due to terminal losses was the highest in West Africa. Taking into consideration the relatively low access rates in the country, these hidden costs have proven to be a heavy burden on the economy as a whole. According to Pushak and Foster (2011), “In 2010, these hidden costs drained around 1.8 percent of Sierra Leone’s GDP.”

10.3.5 Circumvention Measures

Where a production factor input presents a constraint in an economy, economic agents typically find ways and means of getting around the problem. The problem of low and unreliable supply of power in the economy is one such constraint that firms have found ways of circumventing. Businesses that

need power for their operations invariably invest in private power generating plants as a means of reducing or insulating themselves against the risks of power outages and potential losses that it could cause. In the case of mining, large agribusiness and manufacturing companies, the power generation capital expenditures and operating expenses are quite high. For many years, these captive power generation systems have been larger than the public grid. The following

Table 10-5 shows the installed power generation capacities of public power generation facilities as compared to private power generation facilities.

Table 10-5 Private vs. Publicly Generated Power Supply

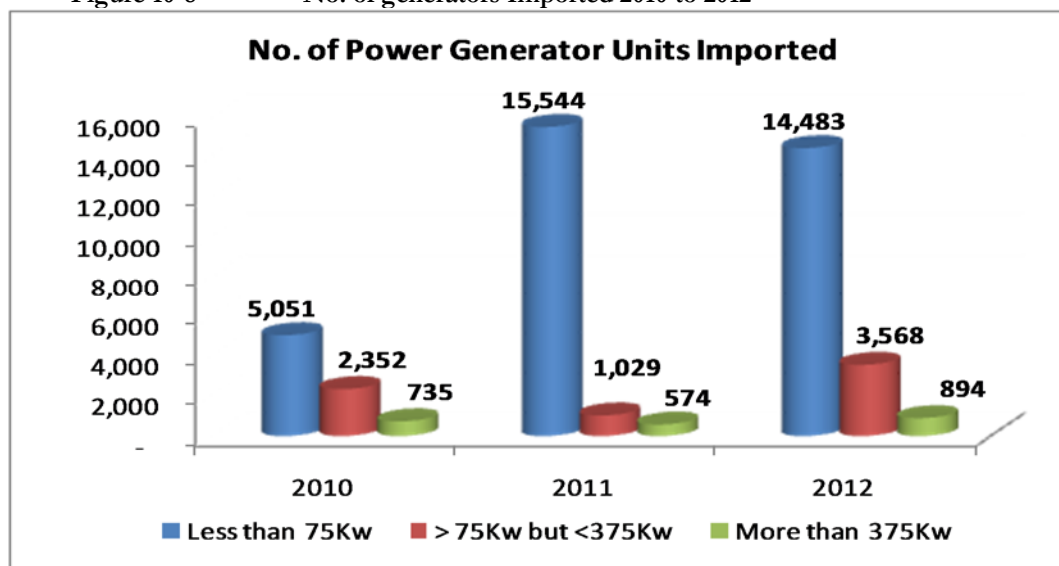
Types of power plant	Installed capacity in MW	Number of plants	State owned, private, mixed	Grid connected or decentralized
<i>Thermal Oil plant</i>	37	7	State owned	grid connected
<i>Large Hydropower plants (>10MW)</i>	50	2	State owned	Grid connected
<i>Small Hydropower plants (<10MW)</i>	6.75	4	State owned	Grid connected
<i>Auto-generators (135MW) plus two years imports (39MW)</i>	135+39 = 174	33,000	Private	Isolated
<i>Mining company generators</i>	88.5	Unknown	Private	Isolated
<i>Photovoltaic</i>	0.025	Unknown	Mixed	Isolated
Total MW	356.3			

Source: MEWR, NPA and SPU (2012)

Table 10-5 shows that private power generation capacity is estimated at 174MW; this generation capacity is limited to non-mining sector firms and private households in the country. It far outweighs total maximum grid-based power generation capacity of about 93.75 MW. Clearly, the requirement by private businesses to make huge investments in power generation to meet their power needs in effect increases investment costs and operating costs as well. The total capital expenditure costs being borne by private firms (excluding mining companies) and households to circumvent the constraint of limited power supply is estimated at over US\$ 100 Million¹⁵. Figure 10-8 shows the quantity of power generating units imported into Sierra Leone between 2010 and 2012. The Figure 10-8 below presents the trend in importation of power generator units into the country between 2010 and 2012.

¹⁵Estimated investment costs by households and firms in buying imported generators to circumvent power from the grid

Figure 10-8 No. of generators Imported 2010 to 2012



Source: Customs and Excise Department, NRA

The foregoing analysis shows a huge scale of circumvention by firms and households in the economy, which have substantial capital cost implications. Table 10-6 shows the percentage of firms surveyed in Sierra Leone, among other countries, which reportedly owned or shared a generator as part of their business operations. For Sierra Leone we have about 81.8 percent of firms using such generators for optional power, which is significantly higher than the comparators as is evident in Table 10-6 below.

Table 10-6 Percent of Firms Owning or Sharing a Generator

Country	Country Average	Small Firms	Medium Firms	Large Firms	Year
The Gambia	20.7	15.2	25.7	n.a.	2006
Guinea	59.9	60.6	47.3	82.9	2006
Sierra Leone	81.8	80.7	86.4	100	2009
Malawi	25.3	4.1	34.4	46.0	2009
Liberia	66.5	67.1	52.9	94.3	2009

Source: World Bank: Business Enterprise Survey (2009)

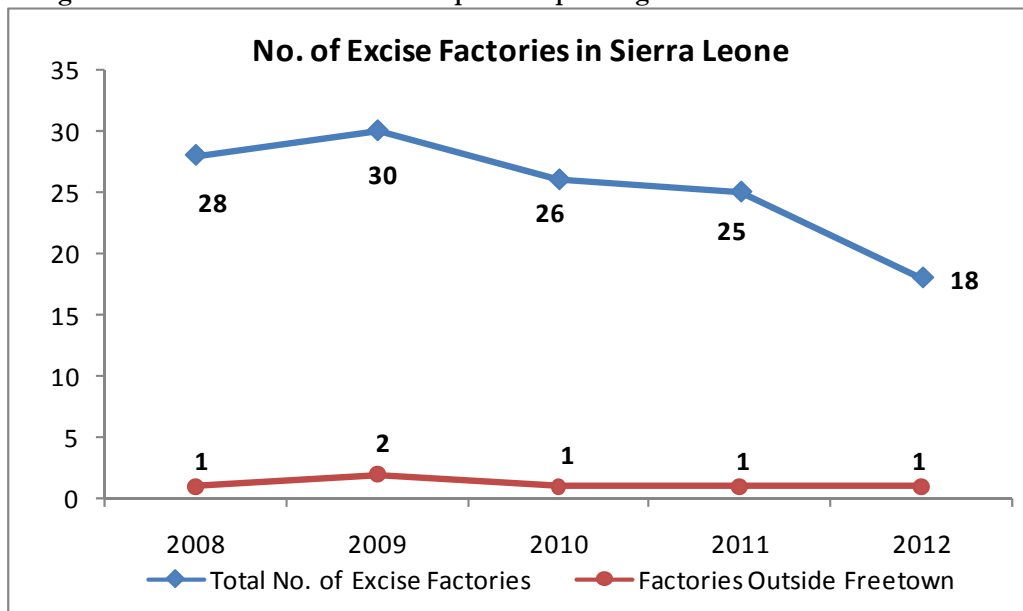
10.3.6 Implication for Private Enterprise Survival and Growth

The relatively low power supply levels, coupled with the high cost of self-generation and/or the relatively high power tariffs, has an adverse effect on certain types of economic activities. These include manufacturing and other types of industrial or large scale businesses that rely on uninterrupted power supply for their successful operations. The number of businesses engaged in value-added manufacturing or production of finished goods remains low. Because manufacturing companies require uninterrupted power supply, capital investment and related financing costs required to provide parallel power systems to such industries in Sierra Leone has proven to be

prohibitively high, particularly for domestic firms. As a result, almost all manufacturing industries in Sierra Leone are foreign owned.

As a general principle, electricity produced by small generating units is generally much more expensive per kWh than purchasing electricity from the national grid due to the economies of scale in power production. Because manufacturing companies are invariably required to self-generate power, Sierra Leone has over the years seen few firms operating in this sector. Figure 10-9 shows the number of companies operating as excise manufacturing companies in Sierra Leone over the past 4 years. It shows that the number of excise factories dropped from 28 in 2008 to 18 in 2012. One of the major factors responsible for the shut-down of these companies is the high operating cost of producing power, which makes them unable to compete with imported goods that are close substitutes to their products. A distillery company located in the East of Freetown recently purchased the production machinery of a soft drink company in Kingtom which shut down as the operating cost was not sustainable and couldn't compete with imported soft drinks. The distillery company was able to continue to operate as it operates in a less competitive industry and enjoys huge scale economies.

Figure 10-9 Number of Excise Companies Operating in Sierra Leone



Source: Customs and Excise Department, NRA

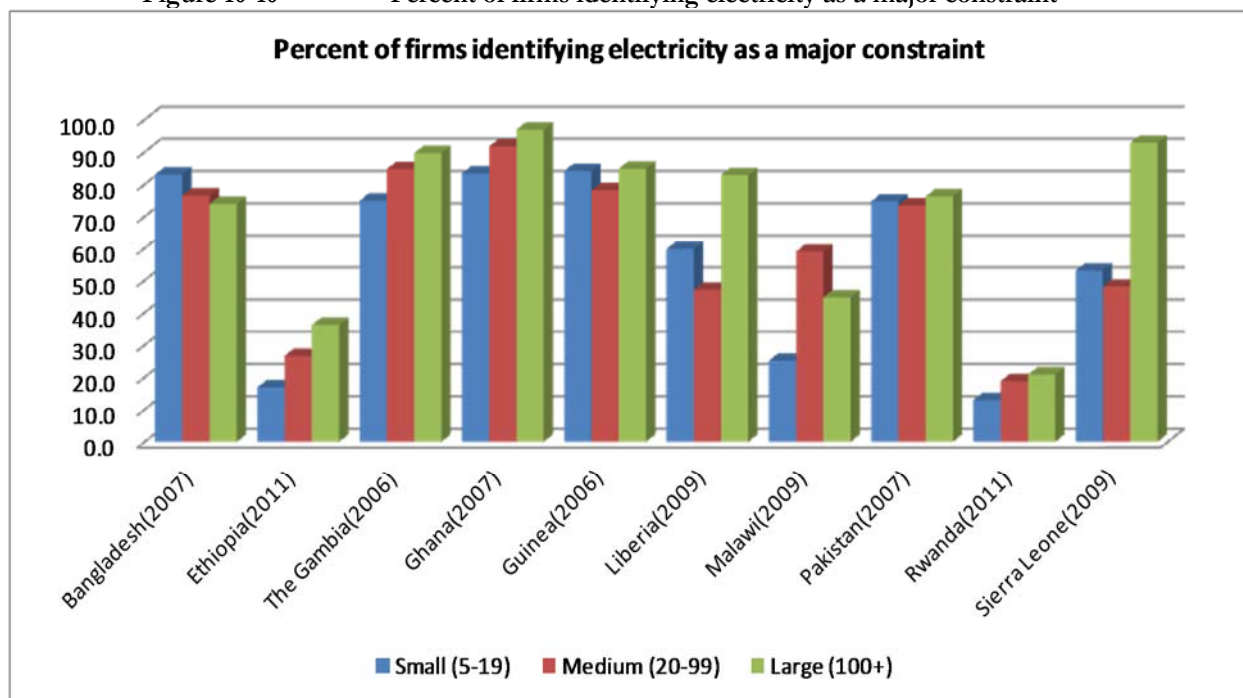
The foregoing has implications on potential output; particularly for a country that is rich in natural resources and which has a relatively large agricultural sector. For many years, the contribution of the manufacturing sector to GDP has remained around 12 percent; this is partly due to the presence of few manufacturing industries, which could be further attributed to the weak power supply conditions in the economy. The diversification of economic activities into value added industrial activities could potentially stimulate significant levels of growth in the

economy. The presence and ready availability of natural resources and various forms of primary products in the economy offers huge potentials for industry led growth, if the fundamental problem of power supply can be addressed.

10.3.7 Enterprise Views on Power as a Constraint

The World Bank enterprise survey conducted in 2009 sought the views of firms operating in Sierra Leone on the issue of power supply. As shown in Figure 10-10, over 90 percent of large firms, 50 percent of small firms and 45 percent of medium sized firms indicated that power is a major constraint to their operations. It is worth noting that the magnitude of the constraint is more pervasive with larger firms. This could be due to the fact that their operations rely more intensively on power supply. Power is more of a constraint to larger businesses because their expenditures on ensuring adequate power supply would be much higher compared to a typical small business that mostly has low energy needs.

Figure 10-10 Percent of firms identifying electricity as a major constraint



Source: World Bank Business Enterprise Survey (2009)

10.3.8 Conclusion

Based on the foregoing analysis, the following conclusions may be made:

The economy is paying a high shadow price for the weak power situation in the country; this is evidenced by:

- High loss of economic output due to outages that cannot be substituted with other power sources
- High marginal costs paid by economic agents not connected to the grid to provide alternative fuels for lighting at household levels
- High revenue losses to the utility as a result of the weak state of the overall power infrastructure, under-pricing and inefficiencies in collection
- Economic agents are making a lot of efforts to circumvent the problem by providing alternative means of power to ensure survival and continuity of their businesses. This is evidenced by significant and increasing levels of self-generation of power at household and firm levels, practically tripling the total power supplied by the grid.

Large firms who absolutely require adequate and reliable power supply to ensure survival and continuity have to pay higher costs of generation to minimise the risks of shutting down. Where firms, especially in industrial operations, are not capacitated enough to ensure such reliable supplies, or where the overall operating costs render them uncompetitive, they are forced to close down.

There is some evidence that higher levels of power infrastructure stock could contribute towards higher economic growth and enhance competitiveness by contributing towards reducing operating costs. This argument could be supported by the fact that Sierra Leone is a natural resource rich country and the availability of these raw materials could offer potential competitive advantages in value-added processing.

10.1 Information and Communication Technology (ICT)

10.1.1 Introduction

Telecommunications is considered a necessary amenity for the socio-economic development of any nation. Putting that fact into perspective, the Information and Communication Technology (ICT) sector in Sierra Leone has been revamped with an increasing growth due to the mobile phone companies that have moved in the country. There is only one fixed line operator which is a government owned company. All of these companies are being regulated and monitored by the National Telecommunication Commission. As a whole, the subscriber base has been increasing within and outside the capital. The combined subscriber base is reported to have reached 2,254,925 as at the end of 2010 representing almost 38% of the population (AfDB, 2011). The country's own telecommunication company, SIERRATEL, almost shut down a few years ago, but has been resuscitated as is evident in their improved and increased services, largely attributed to the introduction of a mobile telephony system (REF). So even though the traditional telecommunications infrastructure that is largely landline-based, has experienced neglect, the telephone industry overall is hopeful of a promising future.

The telecommunication industry is made up of the government owned Sierra Leone Telecommunication Company Ltd. (SIERRATEL) that provides both mobile phone and internet service providers. SIERRATEL was incorporated on the 1st April 1995 as a limited liability company with 100% government shareholding. It is a merger of the previous existing Sierra Leone External Telecommunication company (SLET), provider of international telecommunication services, and the Sierra Leone National Telecommunication Company (SLNTC). Upon SLET's successfully taking over of SLNTC it was enlarged and re-named the Sierra Leone Telecommunications Company Ltd. It has enjoyed monopoly rights since its formation as being the only company in the telecommunication industry.

Notably, a consequence of the war was that Sierra Leone was delayed from obtaining a fibre optic landing cable from the main SAT 3 connection along the coast of West Africa. Until recently when it was successfully landed although they are still working on structures for its full incorporation into the sector. Because of the delay, Sierra Leone has relied on satellites as its primary access medium for wireless technology, resulting in high costs and insufficient access and distribution. This poses serious issues on the overall private sector growth even though the use of ICT is limited in the country – both as individual and business consumers, as the analysis will show.

10.1.2 Sector Summary

Sierra Leone has one of the lowest tele-densities in the world - 170th out of 178 economies - on the Digital Access Index (DIA), which measures the overall ability of citizens to access and use ICTs. The country shows a dismal (0.10%). Telecoms services, particularly wireless networks and internet access, need to be improved across the country. Cell phones are the only reliable means of communicating and receiving information for various purposes. The fixed line networks need upgrading and extending to allow wider access to telecoms services.

Sierra Leone's ICT successes have been occasional and the benefits lopsided even with sustained interest from several quarters of the ICT sector. The recent competition in the banking sector and the installations of the local and wide area networks justifies the seasonal growth trends, implying there is a demand for ICT in the banking sector. The growth in the mobile phone sector has been able to connect Freetown to the provinces. A number of ICT firms and individuals have been able to implement modern ICT technologies to conduct their businesses; albeit at a high cost.

There have been a rising number of internet cafes which accounts for the majority of internet users. Tele centres and internet cafes provide internet access for the general public as well as low

cost international phone calls using VoIP. However, internet penetration¹⁶ is limited, estimated at below 3%. Though usage has grown at a 15% annual rate in recent years, it relies upon satellite telephony for faster and reliable broadband connectivity, so it is still costly and beyond the affordable reach of most of the population. There are few licensed broadband internet providers.

To place Sierra Leone's performance in the ICT sector in context, Table 10-7 and Table 10-8 present the evolution of the mobile phone service together with the sector's performance respectively.

Table 10-7 Rapid Evolution of Mobile Phone Services in Sierra Leone

Year	Subscriber Base	Growth Rate (%)	Mobile Tele-Density (%)	Mobile Penetration Rate (%)	Average Revenue Per User (ARPU)
2007	1,200,000	72	10	18	\$14.0
2008	1,545,000	39	18	31	\$8.0
2009	1,704,965	10	25	35	\$6.5
2010	2,254,925	24	31	38	\$7.0

Source: Ministry of Information and Communication, Sierra Leone.

Table 10-7 and 10-8 show that as the number of subscribers of mobile phones has increased, its growth has slowed. However, the penetration rate for mobile phones is increasing as mobile phone usage extends to the rural areas also. However, the use of land phones is virtually non-existent as most of its use is limited to a few offices. The introduction of mobile phones in the 2000s, together with the 10 year civil war that destroyed almost all the telecommunication infrastructure in the country, contributed to land phones usage becoming virtually non-existent. The proportion of internet users is still low, as less than one person per 100 inhabitants make use of this service.

¹⁶Internet penetration measures the percent of the total population wherein internet facilities are available and being used.

Table 10-8 ICT Sector Indicators in Sierra Leone

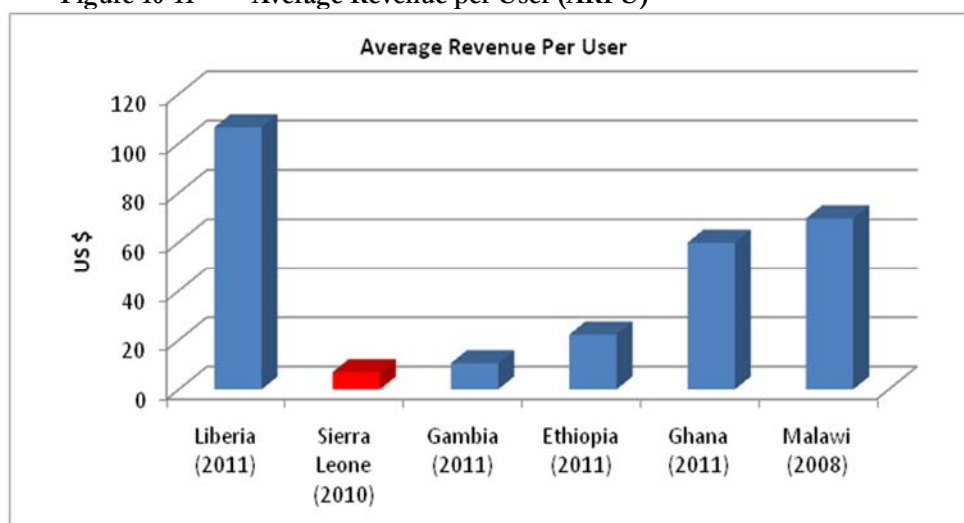
	2000	2001	2002	2003	2007	2008	2009	2010
No. of Fixed Telephone Subscriptions	18,890	22,745	24,000	25,300	30,300	31,500	32,800	14,000
Fixed Telephone Subscriptions per 100 inhabitants	0.46	0.53	0.53	0.53	0.55	0.56	0.57	0.24
Mobile Cellular Telephone Subscriptions*	11,940	26,895	67,000	113,214	776,000	100,8800	1,160,000	2,000,000
Mobile Cellular Telephone Subscriptions per 100 inhabitants	0.29	0.62	1.49	2.39	14.17	17.98	20.21	34.09
Estimated Internet Users per 100 inhabitants	0.12	0.16	0.18	0.19	0.24	0.25	0.26	

Source: World Bank

* Subscribers with more than one sim card are being registered under one sim, hence the lower number as compared to the data in table 7.2.

To place Sierra Leone’s performance in the ICT sector into context, Figure 10-11 – Figure 10-13 and Table 10-9 shows the average revenue per user (ARPU) with comparator countries; revenue from mobile phone companies (as % of GDP); mobile phone subscriptions (per 100 people) and mobile cell phone subscribers.

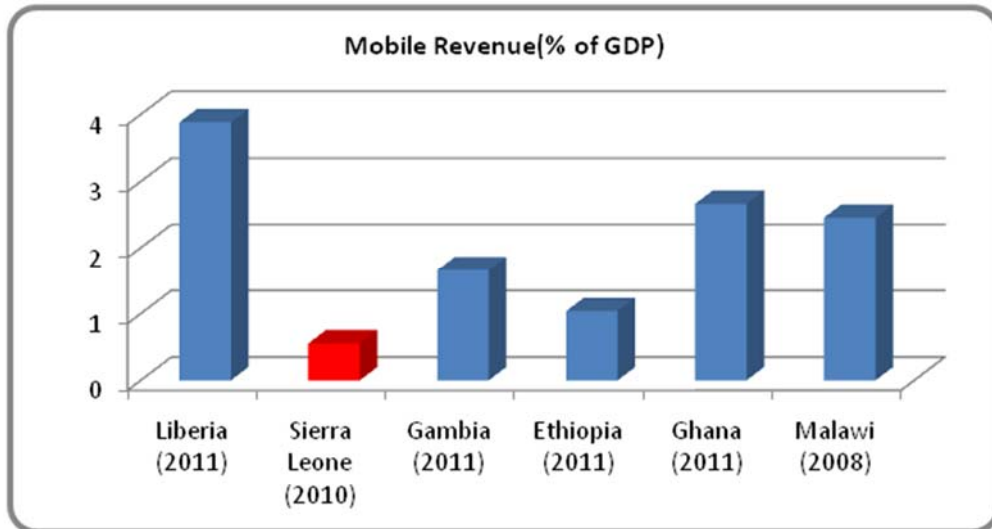
Figure 10-11 Average Revenue per User (ARPU)



Source: Africa Development Bank, Africa Development Indicators 2012

Figure 10-11 above shows the low revenue generated from the average user indicating the low usage of mobile phone in the country as a means of communicating. This could both be due to the low number of users and/or low consumption of those with phones. (The years vary due to the latest data we could find on the given country).

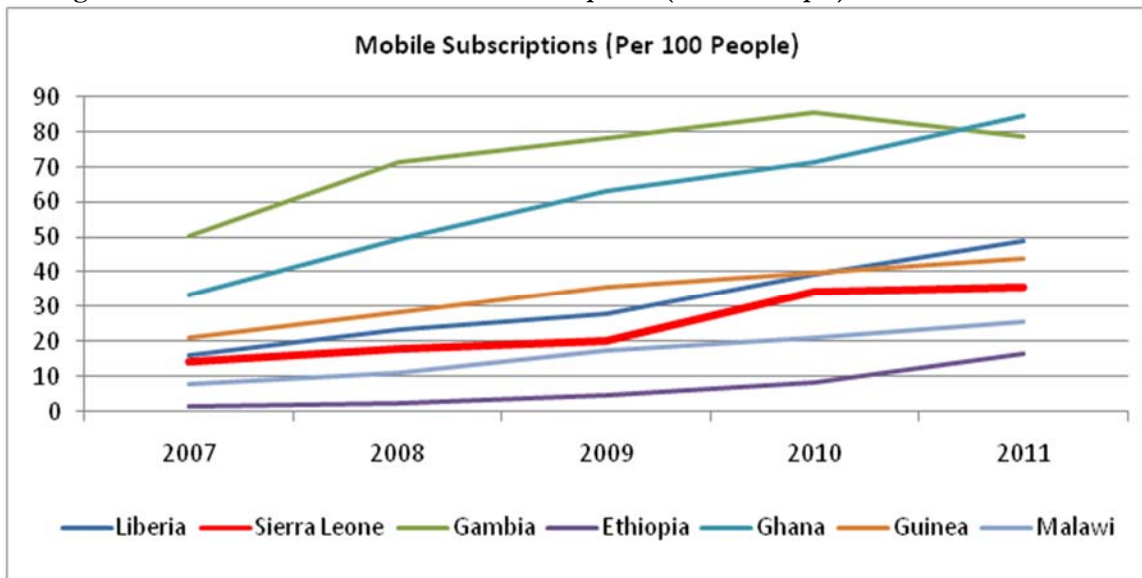
Figure 10-12 Revenue from Mobile Phone Companies (% of GDP)



Source: Africa Development Bank, Africa Development Indicators 2012

Similarly as in the above figure, the percentage contributed to GDP from mobile phone companies is low in Sierra Leone as compared to other countries.

Figure 10-13 Mobile Phone Subscriptions (Per 100 People)



Source: Africa Development Bank, Africa Development Indicators 2012

Figure 10-12 shows that the subscriptions rate per 100 is also low in Sierra Leone when juxtaposed with a majority of her comparators except for Malawi and Ethiopia.

Table 10-9 Mobile Cell Phone Subscribers

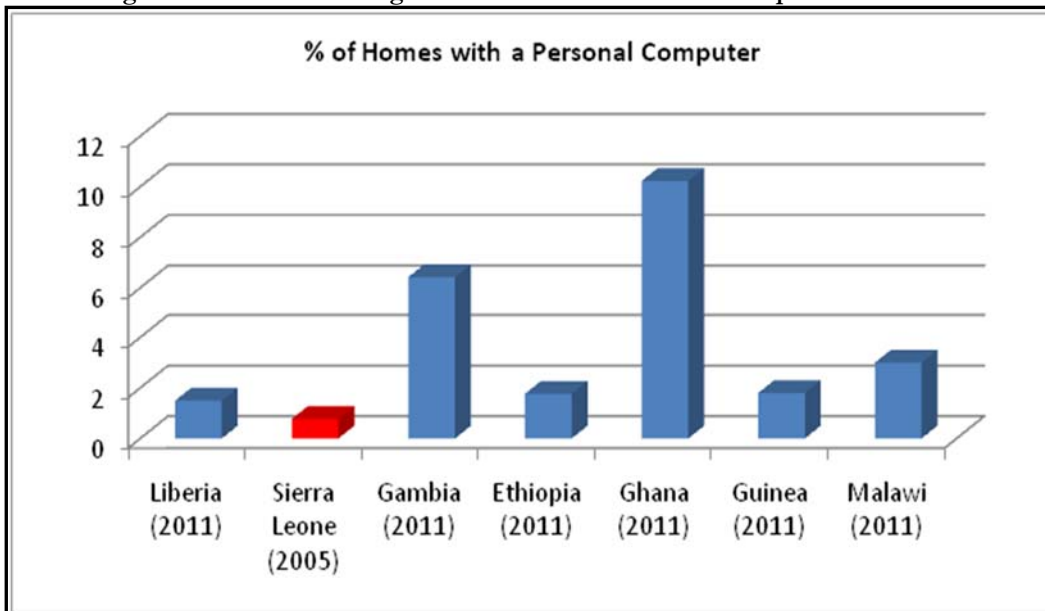
	2007	2008	2009	2010	2011
Liberia	563,000	854,627	1,085,062	1,571,308	2,029,926
Sierra Leone	776,000	1,008,800	1,160,000	2,000,000	2,137,000
Gambia	800,371	1,166,136	1,312,874	1,478,347	1,401,163
Ethiopia	1,208,498	1,954,527	4,051,703	6,854,000	14,126,659
Ghana	7,604,053	11,570,430	15,108,916	17,436,949	21,165,843
Guinea	2,000,000	2,750,000	3,489,000	4,000,000	4,500,000
Malawi	1,050,852	1,507,684	2,485,646	3,117,364	3,951,572

Source: Africa Development Bank, Africa Development Indicators 2012

From Figure 10-11, Liberia followed by Ghana and Malawi have an Average Revenue per User of over \$50. Sierra Leone has the least ARPU of \$7. Revenue generated from mobile phone usage is still the lowest in Sierra Leone compared to her comparators. Similarly, placing the revenue generated as a % of GDP shows that Sierra Leone has the least among the comparator countries. Liberia, Ghana and Malawi lead the chart which is directly as a result of a higher ARPU as is illustrated when both figures are inter-related. Taking mobile phone subscriptions per 100 people into consideration, Sierra Leone is doing fairly well here. We realize a sharp increase in this indicator from 2009 – 2010 and stabilize therein. The Gambia and Ghana have a higher mobile subscription per 100 people.

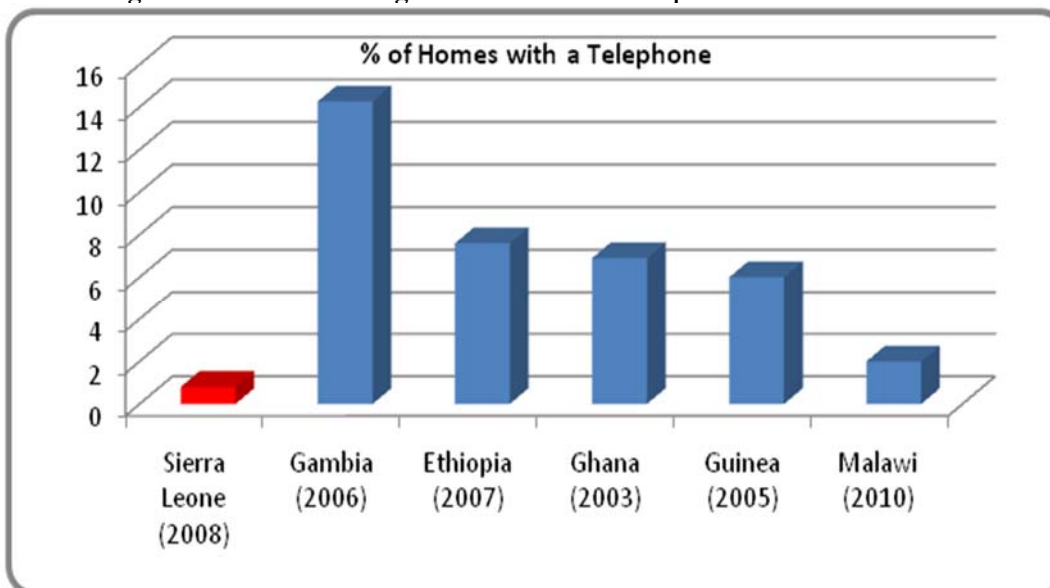
On internet usage and telephone issues, Figure 10-14 shows the percentage of homes with a personal computer. You can see the rate for Sierra Leone is low as compared to others. However, for Sierra Leone, the latest data available for this comparison shows 2005. Figure 10-14 – Figure 10-18 show the percent of homes with a personal computer; percent of homes with a telephone; monthly subscriptions for fixed broadband internet facility; and monthly subscriptions for business telephone services.

Figure 10-14 Percentage of Homes with a Personal Computer



Source: Africa Development Bank, Africa Development Indicators 2012

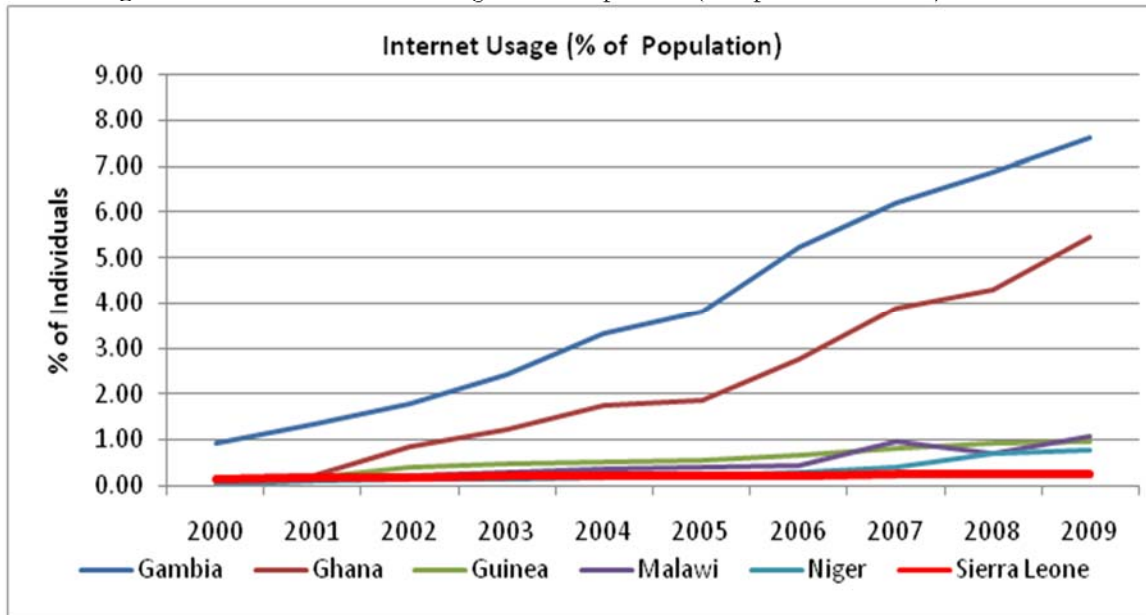
Figure 10-15 Percentage of Homes with a Telephone



Source: Africa Development Bank, Africa Development Indicators 2012

Figure 10-15 shows the percentage of homes with a telephone. Again the relevant year is not uniform among the comparators because the data is not readily available for all of them, but as we can see even though Sierra Leone has the second most recent data behind only Malawi (2010) the others had even more use of phones at home than her. This is largely due to the eleven year war that saw deliberate destruction of the landline infrastructure that country has since not been able to rebound from,

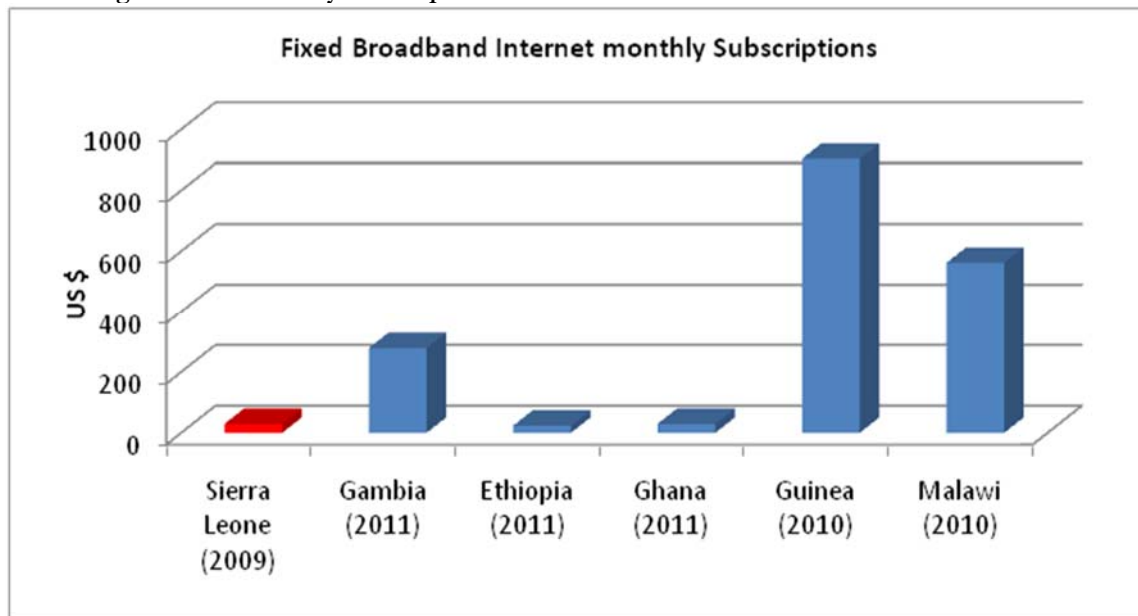
Figure 10-16 Internet Usage - % of Population (Comparator Countries)



Source: World Bank

In Figure 10-16, it is clear that the Internet usage for Sierra Leoneans has been largely dormant from 2000 as it hardly changed. On the other hand Ghana and The Gambia has shown unprecedented increase in the percentage of Internet users from 2000 to 2009.

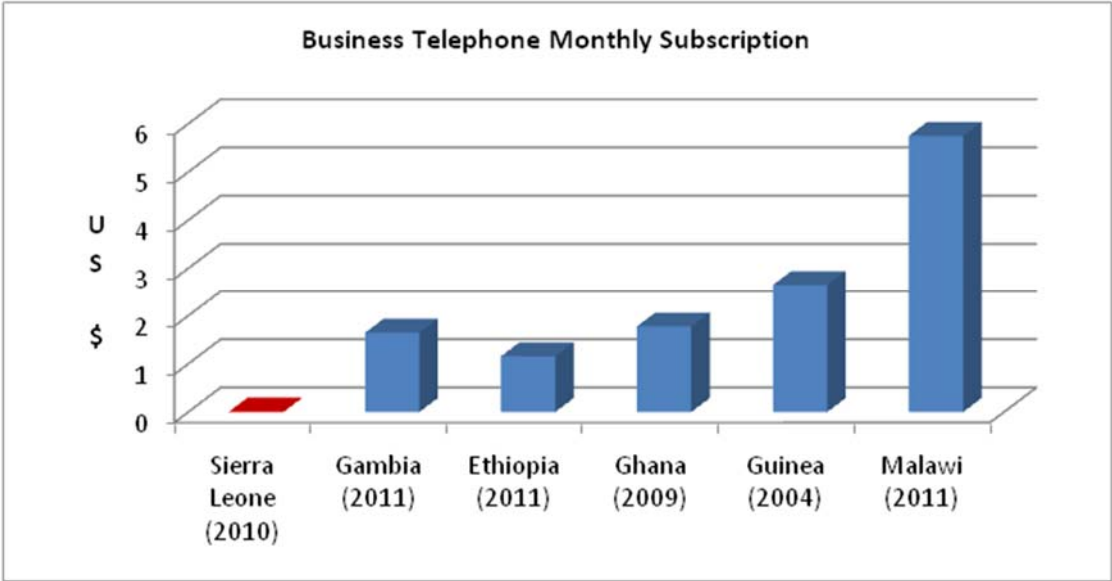
Figure 10-17 Monthly Subscriptions for Fixed Broadband Internet



Source: Africa Development Bank, Africa Development Indicators 2012

Figure 10-17 is another measure that shows how monthly subscriptions for fixed broadband internet are very low in Sierra Leone. However, in this category it is surprising to see a country like Ghana and Ethiopia at par or worse off, respectively to the already low subscriptions revenue rate for Sierra Leone. Again the yearly measure differences are dependent on the availability of data.

Figure 10-18 Business Telephone Monthly Subscription



Source: Africa Development Bank, Africa Development Indicators 2012

Along with individuals, businesses similarly have a low subscription rate for monthly subscriptions in Sierra Leone when aligned against comparators.

Taking the percentage of homes with a personal computer into perspective, Figure 10-14 shows that Sierra Leone has the lowest with less than 1% of the population owning a personal computer. This shows that almost all Sierra Leoneans do not have a personal computer. Ghana and Gambia lead the group in comparative terms even though all the comparator countries show less than 10% of the population having access to personal computer. On the availability of land phones in homes, Gambia has the highest comparatively. On the other hand, Sierra Leone has the least percentage. This is due to the destruction of the facilities as a result of the ten year war. Comparatively, fixed broadband internet is cheaper in Sierra Leone, Ghana and Ethiopia as it costs less than \$30 as opposed to Ghana and Malawi, where it costs a lot more.

Overall, the figures show that the mobile phone sub-sector in Sierra Leone, while growing, is still doing fairly poorly while the internet usage is still the worst among comparators.

10.1.3 The Four Tests

The high shadow price for ICT reveals itself in two ways: the actual cost of Internet services from the service providers and/or Internet cafes on one hand; and the time it takes for internet pages to download. Regardless of that, businesses need to connect to the Internet to be productive. In the mobile services sector, a high shadow price is also reflected in the higher rates of unit calls especially when you make calls cross-network (Comium to Airtel, e.g.). This forces businesses and individuals alike to purchase multiple phones and SIM cards so they can stay within the same network; and make Comium-to-Comium or Airtel-to-Airtel calls that are relatively cheaper when compared to the alternative. Even though the shadow price is high for Internet access in the country and some businesses and individuals alike pay that high price, or that mobile shadow process are also high causing the purchases of additional phones and/or SIM cards, the number of businesses and individuals that use or rely on the Internet is limited for it to make a major impact right away even if the constraint is made more accessible by cheaper prices and larger bandwidth.

According to a paper entitled Sierra Leone's Infrastructure – A Continental Perspective: “Sierra Leone used wireless communications to leapfrog its ICT development, its number of mobile subscriptions going from just 6,000 in 2000 to 1.4 million by 2009 for a penetration rate of one quarter of the population.” The same will happen, if not more, when the IT backbone is set up to enable fast Internet surfing practices and especially downloads of relevant documents. What this is showing is that if a particular constraint (internet and mobile services in this case) is relaxed or unwound, then there is a huge positive change in its use (the increased penetration rate when wireless communications improved some). However, the wireless constraint is not an end of itself. And what we mean by this is that with the poor energy infrastructure, the ICT infrastructure will not be improved as it relies heavily on the former. In this case a constraint to growth due to the lack of ICT is not necessarily relaxed by increasing those services in the light of a weak energy infrastructure. Added to that is that a vast majority of the people are not IT savvy.

Bypassing or circumventing the ICT sector is not an easy task for businesses and/or individuals. As for the mobile communications, the circumvention of high prices is buried in the tariffs charged on a per unit basis, especially when you try to call cross-providers. To get around this problem, many subscribers have to get multiple SIM cards and multiple phones. Or purchase higher priced phones that host two SIM cards as an option. All of these also directly affect the shadow price of doing business within the mobile services sector

As regards the fourth test, the survival of those less constrained by the constraint, it does not hold much because it is difficult to find professional firms who do not use some form of ICT as either

in the form of the Internet and especially mobile phones. Despite the low ICT penetration rates, firms that typically rely on ICT infrastructure, such as banks, have managed to survive and grow.

10.1.4 Challenges

One of the biggest constraints to expanding telecommunications infrastructure in Sierra Leone is the limited extent of the electricity grid, which is in short supply. These areas lack electricity or fixed phone services and are completely disconnected the rest of the country. Even in major cities, the provision of internet bandwidth is limited, expensive and largely unavailable. The fixed line network is old and outdated and incapable of supporting high-speed broadband connectivity. Given the number of subscriptions for both mobile and land phones, and the small percentage of people using the Internet; it would be quite a challenge to make the case that if relaxed, ICT can bring about accelerated private sector and thus economic growth in this country. The usage data just does not support that reality. However, a case can be made that over the years, if ICT constraints are mitigated, we could see an exponential increase in the percentage of users in the country and which may be a catalyst for private sector and economic growth.

The regulatory environment surrounding ICT is fairly new, and it lacks resources and institutional capacity. Existing policies are seen as inhibiting the efficient development of the sector, including increased license and regulatory fees, a service tax and the lack of stable electricity for powering ICT equipment. This weak supporting environment adds to the costs of firms implementing ICT.

In conclusion, while it is true that several gains have been made in the ITC environment, particularly as it relates to the mobile sector, Sierra Leone still seems to be below her comparators as the data indicates. Sierra Leone has a low level of both internet and landline subscribers. Based on the available data, it does not appear that the state of the information and telecommunications sector is a direct binding constraint to economic growth in Sierra Leone.

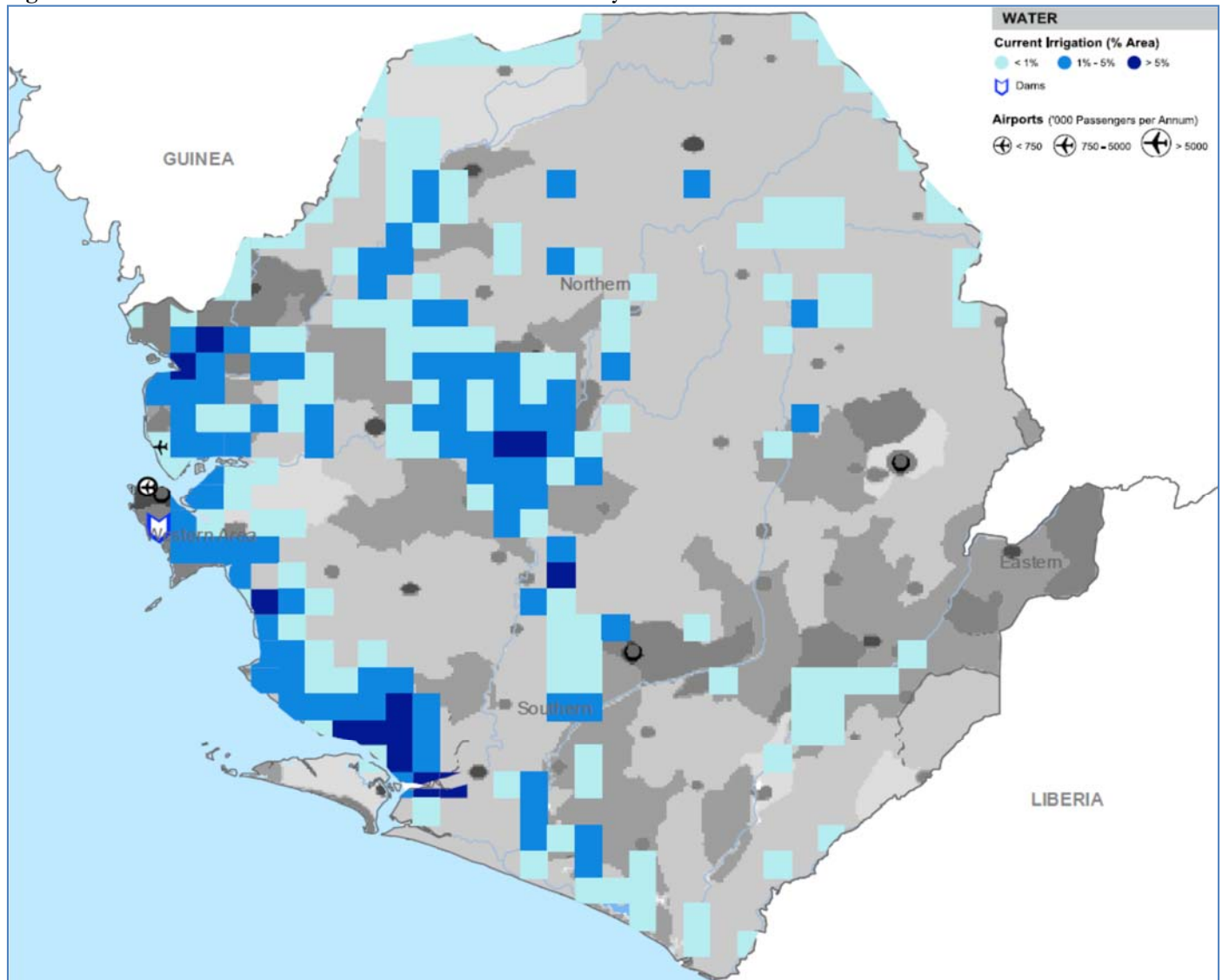
10.2 Water and Sanitation

10.2.1 Introduction

Sierra Leone is naturally blessed with an abundance of water, yet paradoxically, water scarcity and a grossly inadequate sanitation infrastructure threatens the health of most Sierra Leoneans. Although Sierra Leone is a water abundant country as shown in Figure 10-19, the system of water supply and sanitation is in disarray and cannot meet the mounting pressures of a rapidly growing urban population, much less expanding coverage to rural areas. Only 1 percent of the rural population have access to pipe borne water. Improved water supply is only available to

about a third of the rural population and urban water supply systems are also wrought by numerous problems and deteriorating infrastructure. A lot of resources have to be put in and efforts made for Sierra Leone to significantly improve access to drinking water and as well as its sanitation.

Figure 10-19 Abundance of water resources¹⁷ in the country



Source: AICD Interactive Infrastructure Atlas for Sierra Leone downloadable from <http://www.infrastructureafrica.org/library/doc/770/sierra-leone-interactive-infrastructure-atlas>

Sierra Leone is endowed with abundant water resource; however the availability of safe drinking water is limited. The data shows that a greater proportion of people living in rural areas do not have access to safe drinking water. The extent to which this impedes economic growth may not

¹⁷ This includes combined surface and ground water

be immediately obvious, but the data shows that it could be an important constraint, especially when coupled with the sanitation issues, which we will also address later in this chapter.

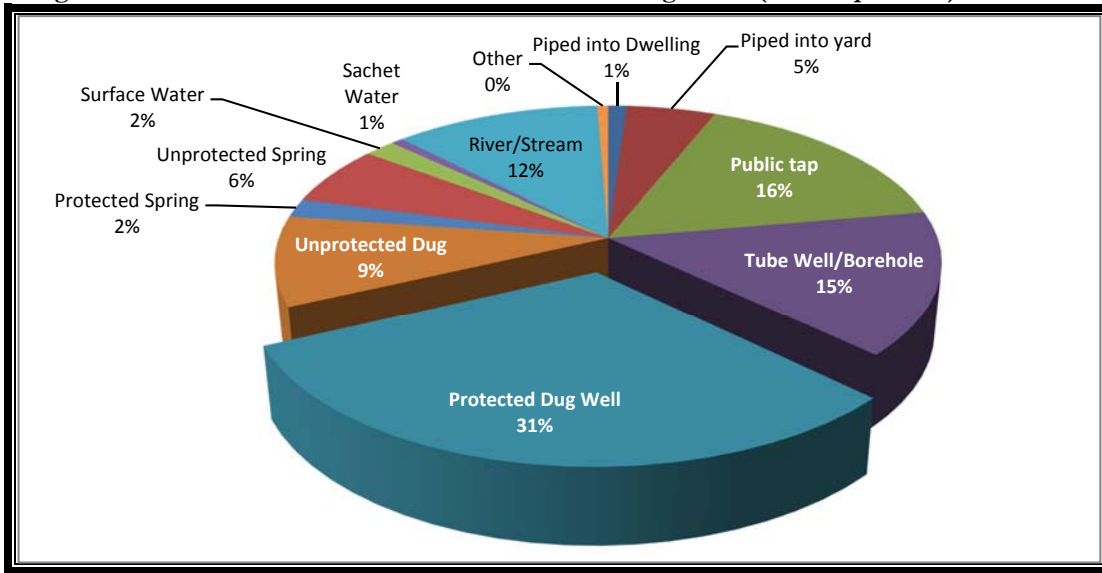
Guma Valley Water Company supplies water to Freetown drawn mainly from the Guma Dam. This is complemented by ground water resources. Sierra Leone Water Company (SALWACO) provides water to six urban areas in the provinces. Nonetheless, as identified earlier, it is estimated that more than two thirds of the rural population have no access to safe drinking water. To enable them to have some adequate supply, the rural population circumvents the constraint of the lack of potable water by developing practices that are not conducive to a healthy lifestyle. For example, wells that are not protected become one of the primary means by which they fetch water. Some of them, similarly, get their supply from unprotected surface water. It is no wonder that water-borne diseases such as cholera, E. coli, fecal coli, and other agents of disease abound. Such diseases cause annual illnesses that may account for lost productivity and many times loss of lives as they can be fatal, as evidenced by the cholera outbreak in 2012.

10.2.2 Water Conditions

The source of water to be used depends on a number of factors, namely, distance from the community, water yield, vulnerability to natural hazards, quality, quantity and cost of development, and treatment and operation of water (Pedley, Pond & Joyce 2011). WHO/UNICEF Joint Monitoring Programme on Water Supply and Sanitation recommends that a drinking-water source should be less than one kilometre away from its place of use. In identifying the source of water, the process takes into consideration the needs of low income people because they are prone to risks like infectious diarrheal disease, cholera and typhoid diseases from inadequate water supply (Pedley, Pond & Joyce 2011).

Figure 10-20 shows the distribution of the population by source of drinking water. The population using improved sources of drinking water is defined as members of households using water supplied through one of the following ways: piped water (into dwelling, compound, yard or plot), public tap/standpipe, tube well/borehole, protected dug well, protected spring, and rainwater collection. Bottled water is considered as an improved water source only if the household is using it as an improved water source for other purposes, such as hand washing and cooking.

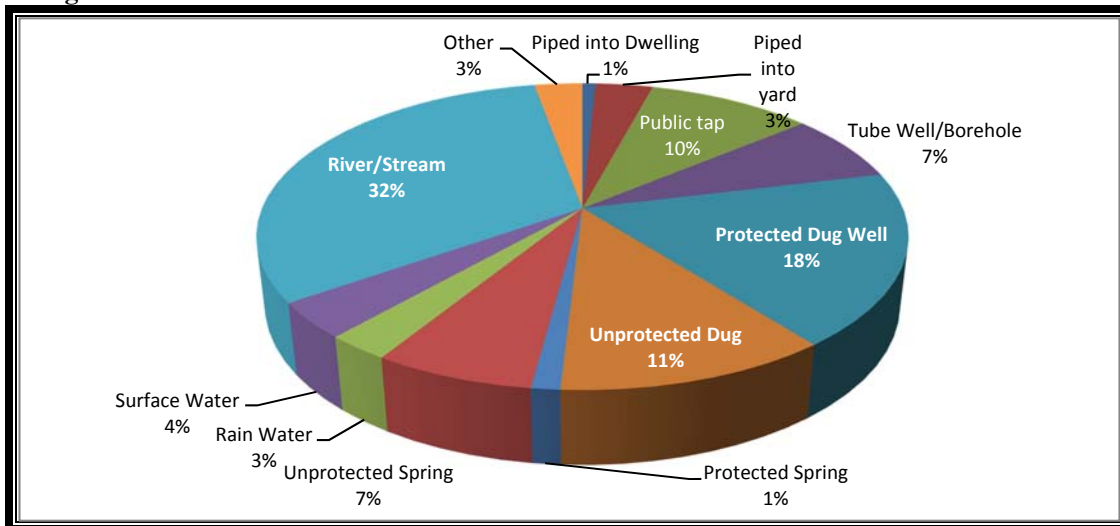
Figure 10-20 Household Sources of Drinking Water (% of Population) 2011



Source: Statistics Sierra Leone

From Figure 10-20, protected dug well, tube well/borehole, and public tap form the most common sources of water for the population of Sierra Leone. Water piped into dwelling houses which is the most desired form of water access is however the least source of water as only 1 percent of the population has such facilities. This may be due to its high cost, which cannot be afforded by the vast majority of poor people.

Figure 10-21 Sources of Water used for other activities



Source: Statistics Sierra Leone, 2013

Demand for Water

Sierra Leone is blessed with abundance of water; however, the distribution of water to households for drinking and other household purposes is poor. Added to this is the need for

agricultural production and the growing agro-based industry and manufacturing sectors. There is need to allocate water rights amongst competing sectors in order to maximize their development impact. The demand for water could be looked at in terms of access, water insufficiencies and cost. The following sub-sections provide a detailed analysis of this situation in Sierra Leone.

Access to Safe Water

While the water supply coverage rates in Table 10-10 shows stark differences in improved water and sanitation services to rural versus urban populations, the country overall as compared to other countries in the sub region still has some serious water issues that can pose a constraint to economic growth. Sierra Leone has the least overall percentage (11%) of people with access to sanitation facilities which is lower than the average for the sub region. This means in Sierra Leone for every 10 Sierra Leoneans, only 1 of them has access to sanitation facilities. However, looking at both rural and urban areas, 6% of people living in rural areas have access to improved sanitation whereas 23% have such access in urban areas. The situation is much improved when we look at the percent of the population with access to improved water in urban areas (87%). However, the situation is poor in the rural area (35%). Compared to other countries, Sierra Leone is still among the worst performing countries in the sub region.

Table 10-10 Water and Sanitation infrastructure in Sierra Leone and Comparator Countries (2010)

	% of Rural Pop with Access to improved Sanitation	% of Urban Pop with Access to improved Sanitation	% of Rural Pop with improved Water	% of Urban Pop with improved Water
Sierra Leone	6	23	35	87
<i>Guinea</i>	11	32	65	90
<i>Liberia</i>	7	29	60	88
<i>Gambia</i>	65	70	85	92
<i>Malawi</i>	51	49	80	95
<i>Pakistan</i>	34	72	89	96
<i>Ethiopia</i>	19	29	34	97
<i>Rwanda</i>	56	52	63	76
<i>Ghana</i>	8	19	80	91
<i>Bangladesh</i>	55	57	80	85

Source: World Development Indicators, 2012.

Table 10-11 reveals that progress is slowly being made to deliver service up country. In fact according to the World Governance Indicators of the World Bank, the percentage of rural population with access to safe drinking water has been slowly inching up from 32% in 2003 to 35% in 2010.

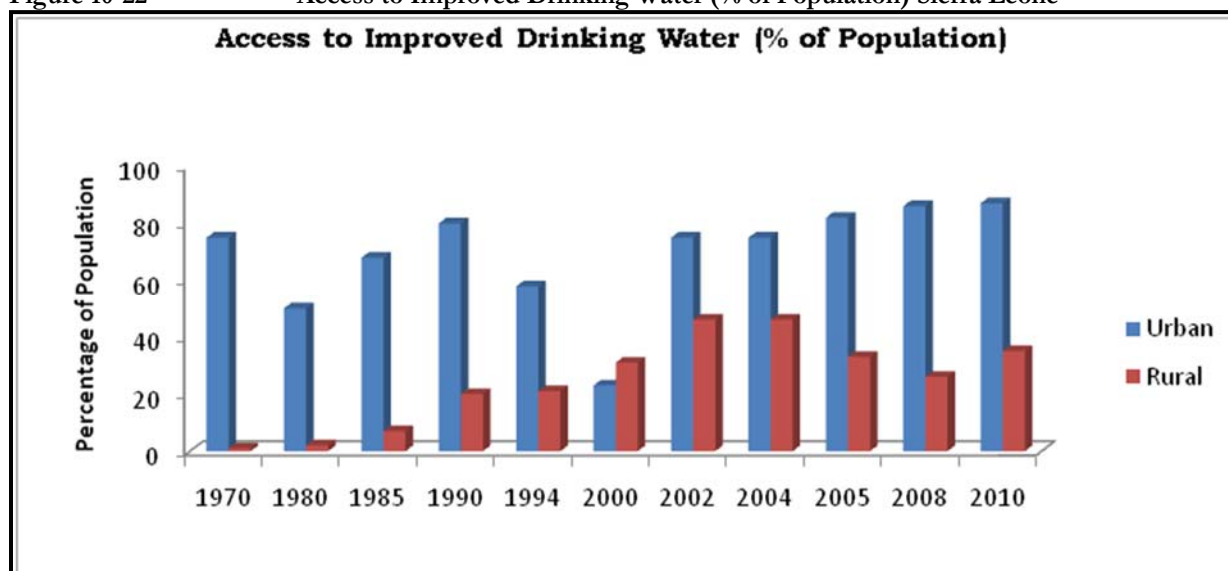
Table 10-11 Trends in Access to Safe Drinking Water

	2005	2006	2007	2008	2009
Bo	8%	9.5%	12%	13%	15-20%
Kenema	20%	25%	28%	33%	35-40%
Makeni	13%	16,5%	25%	30%	25-30%
Lungi	4%	6%	7%	8%	10-15%
Kono	-	-	-	-	0%
Kabala	-	-	-	-	0%

Source: Water Year Source: PRSP/II Progress Report.

To have an understanding of the distribution of access to safe drinking water, Figure 10-22 below shows the percent of the population with such access based on the location of the population, i.e. rural and urban.

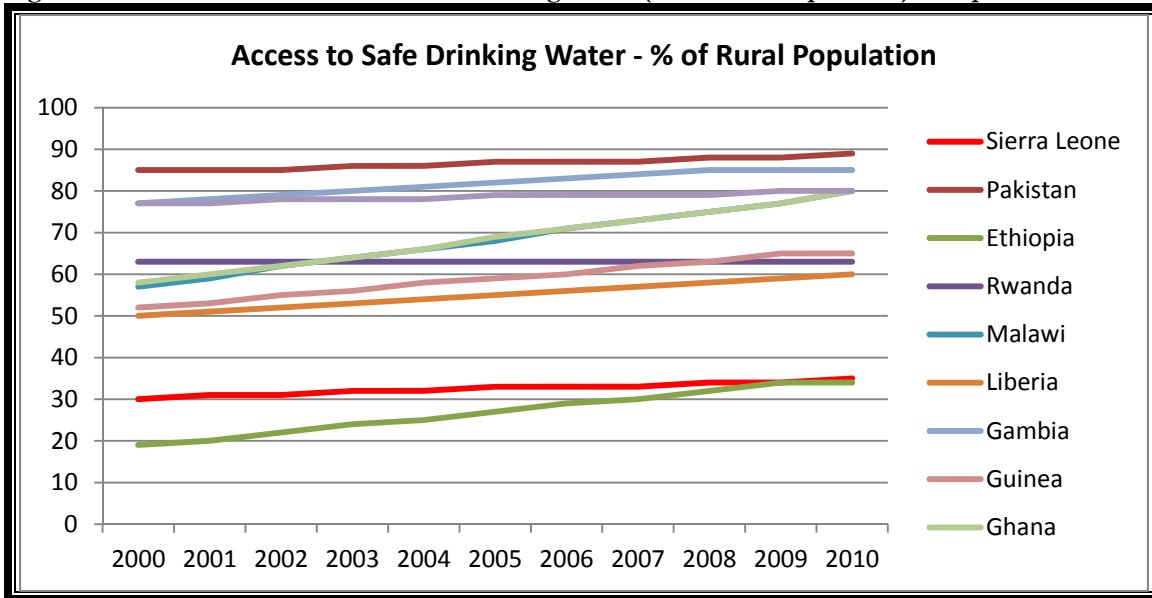
Figure 10-22 Access to Improved Drinking Water (% of Population) Sierra Leone



Source: World Bank, AfDB, WHO & UNICEF

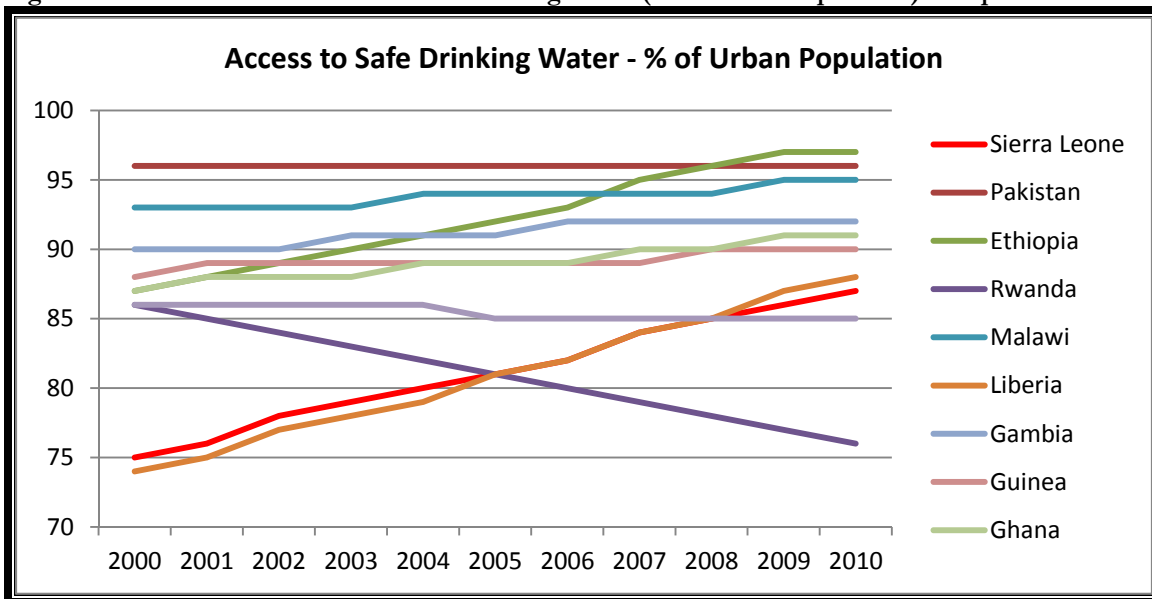
Figure 10-22 above shows that between 2004 and 2010, access to improved drinking water improved for people residing in urban areas, whereas it declined for rural communities. We also note that about 80 percent of the population in rural areas had no access to improved drinking water in 2008. This is completely the opposite of what pertains in the urban areas, wherein about 75 percent of the population had access to improved drinking water.

Figure 10-23 Access to Safe Drinking Water (% of Rural Population) Comparator Countries



Source: World Development Indicators, 2012

Figure 10-24 Access to Safe Drinking Water (% of Urban Population) Comparator Countries



Source: World Development Indicators 2012

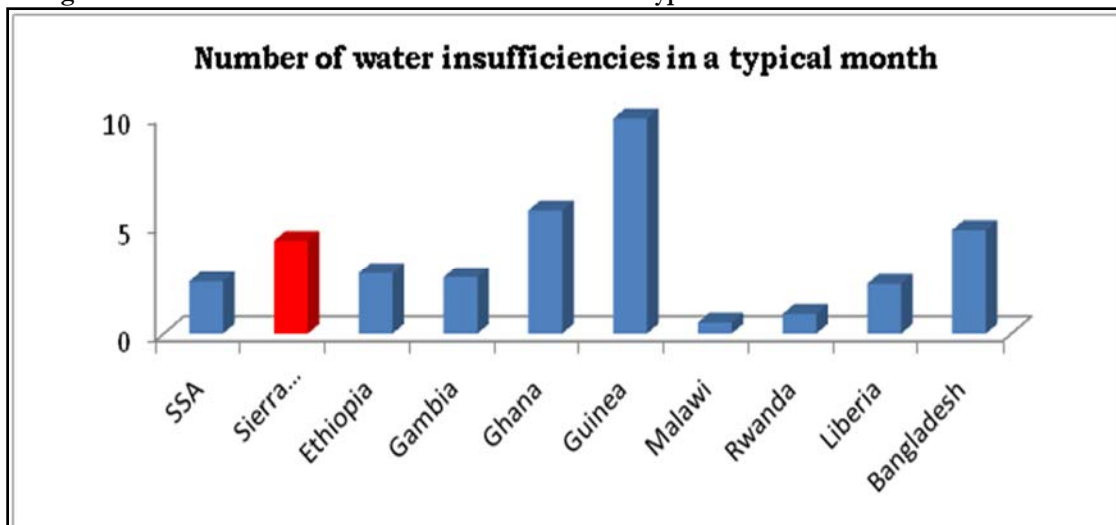
Figure 10-23 and Figure 10-24 show the proportion of the population with access to improved drinking water for Sierra Leone and comparator countries for both rural and urban areas. In almost all comparator countries, access to safe drinking water is skewed in favour of urban areas than rural areas. On access to safe drinking water in rural areas, Sierra Leone and Ethiopia are the worst performers. One of the reasons for the poor availability of safe drinking water in rural areas is the inefficiency of the institution (SALWACO) charged with the responsibility of providing water to the rural areas, lack of maintenance, corruption and lack of funding. For

urban areas, the access rate improved greatly. Overall, it seems like all countries are at 80 percent or above. It shows that all countries have been improving their access to safe drinking water in urban areas.

Water Insufficiencies

According to the World Business Council for Sustainable Development, water stress applies to situations where there is not enough water for all uses, whether agricultural, industrial or domestic. When annual per capita renewable freshwater availability is less than 1,700 cubic meters, countries begin to experience periodic or regular water stress, which can impede economic and human activities that rely on water. However, in a situation where freshwater availability is below 1,000 cubic meters, water scarcity distorts economic development, human health and wellbeing. At current trends, Sierra Leone has over 30,000 cubic meters per capita per year of renewable water resources, one of the highest in Sub-Saharan Africa, yet still a good number of the population do not have access to safe drinking water. The infrastructure to support the availability of safe drinking water to the population is poor and inadequate. The state of infrastructure will determine whether Sierra Leone can tap into the abundant supply.

Figure 10-25 Number of water insufficiencies in a typical month



Source: World Bank Business Enterprise Survey (2009)

Figure 10-25 shows the number of water insufficiencies (shortages) in a typical month for Sierra Leone and her comparator countries. The water insufficiencies show the number of shortages coupled with the availability and access to safe drinking water. One notes that that Sierra Leone is doing worse than the SSA average, but better than Guinea, Ghana and Bangladesh.

10.2.3 Cost of Water

Knowing the percent of the population without access to improved water and sanitation, it is necessary to know the cost of time lost and the cost of the water. Average Time to Collect Water shows the average time to collect water. On average, it takes about 32 minutes a day to fetch drinking water, but at the same time it takes on average 53 minutes a day to collect water for other uses. On the whole, it takes about 83 minutes a day to collect water for all uses of water.

Table 10-12 Average Time to Collect Water

Source of water	Average time to collect (minutes/day)		
	Drinking water	Other water	All water*
Piped into Dwelling	9.0	16.5	29.3
Piped into yard	27.0	30.2	58.5
Public tap	35.9	56.3	92.0
Tube Well/Borehole	19.1	38.1	54.5
Protected Dug Well	22.3	47.6	65.1
Unprotected Dug	40.1	51.8	98.5
Protected Spring	31.7	63.4	87.2
Unprotected Spring	60.8	81.0	137.4
Rain Water	11.5	11.1	96.8
Tanker-truck	54.0	4.0	186.8
With Small Cart	28.0	13.8	49.6
Surface Water	40.5	58.9	98.5
Bottled Water	30.0	48.5	108.0
Sachet Water	17.2	25.2	117.2
River/Stream	44.2	59.7	122.7
Other	19.7	26.6	97.1
Average	31.99	52.72	82.93
Yearly Average Time(Mins)	11,677.69	19,243.37	30,270.39
Yearly Average (Hours)	194.63	320.72	504.51
Yearly Time (Days)	8.11	13.36	21.02

Source: Author's calculations from 2011 SLIHS

*Columns 2 & 3 do not add up because some people do not use the same source for drinking as for other uses.

On a yearly basis, people spend about 195 hours (about 8 days lost) to collect drinking water and about 321 hours (about 13 days lost) to collect water for other uses. In total, people lose about 21 days to collect water for water related uses per year. This implies people spend a lot of time to collect water for drinking and other uses. It is also important to consider that women and girls are more likely to spend their active time doing this type of activity than men and boys. In cases where the time needed to fetch water impedes school attendance, girls may lose out on learning because of their duties for fetching water for the household. In terms of the cost argument, where households are poor, women and children carry the brunt of the burden to secure water as

opposed to paying for the resource. That contribution in terms of effort and financial savings to the household budget is not necessarily counted against family incomes, although it underpins the economic contribution of women and girls to family sustenance.

Additionally, households also pay for water for drinking and other uses. Table 10-13 below shows how much households pay on average.

Table 10-13 Cost of Water

Source of water	Cost of water			
	SLL/mo	SLL/year	2011 USD	2011 PPP
Piped into Dwelling	7,456	89,469	\$ 20.57	48.25
Piped into yard	27,468	329,617	\$ 75.79	177.77
Public tap	21,299	255,591	\$ 58.77	137.85
Tube Well/Borehole	12,321	147,849	\$ 34.00	79.74
Protected Dug Well	15,135	181,618	\$ 41.76	97.95
Unprotected Dug	12,024	144,282	\$ 33.18	77.81
Protected Spring	26,119	313,422	\$ 72.07	169.04
Unprotected Spring	3,000	36,000	\$ 8.28	19.42
Rain Water	20,000	240,000	\$ 55.18	129.44
Tanker-truck	800		\$ -	-
With Small Cart	60,000	720,000	\$ 165.55	388.31
Surface Water	39,734		\$ -	-
Bottled Water	17,500	210,000	\$ 48.29	113.26
Sachet Water	30,304	363,646	\$ 83.61	196.12
River/Stream	123	1,473	\$ 0.34	0.79
Other	97	1,166	\$ 0.27	0.63
Average	23,999	287,985	\$ 66.22	155.32
Total Households	857,143			
Total Cost	20.57 Billion	246.84 Billion	\$56.76 Million	133.13 Million

Source: Author's calculations from 2011 SLIHS

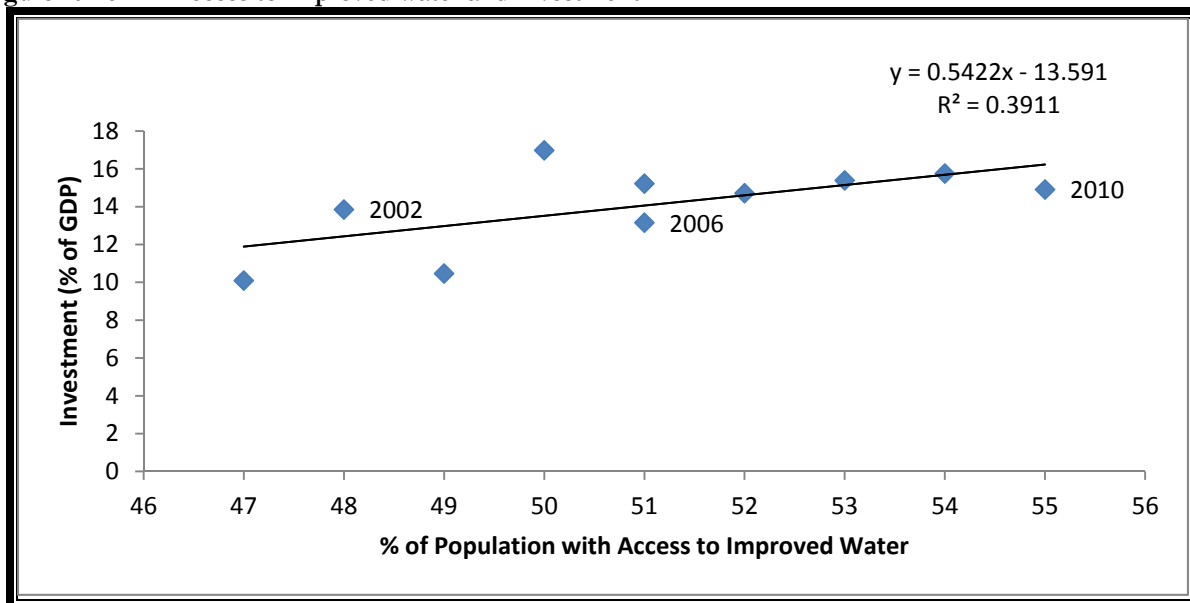
Households spent an equivalent of 1.96 percent of GDP in 2011 just to get water. The total number of productive days lost as a result of fetching water (21 days), is equivalent to about 5.75 percent of GDP. From Table 10-13, it is evident that households spend a lot of money to obtain water - \$66.22 per year (\$155.32 PPP). This alludes to the fact that the shadow price of water is high. The total annual money spent by households to obtain water for domestic and other uses amount to \$56,760,000.

Growth Impact of Water

An investment in water in terms of costs averted and productivity gained can lead to a higher return. However, the returns are different between developing and developed countries. A US\$1 investment can give a rate of return equivalent to US\$ 2.786 and US\$ 5.975 for developed and developing countries respectively. The higher rate of return in developing countries is related to the potential to significantly decrease mortality rates (WHO 2010, World Water Day Factsheet).

In terms of water interventions, a recent WHO report indicates that a US\$1 invested in household water will lead to a benefit of US\$60. To further have a look at the relationship between changes in improved water sources and investment, Figure 10-26 below shows this relationship. We note here a positive relationship exists between changes in improved water resources and investment, although it is somewhat weak.

Figure 10-26 Access to improved water and investment



Source: World Development Indicators, 2012

10.2.4 Sanitation

Sierra Leone's poor health indicators especially maternal and child mortality rates are as a result of the lack of sanitary facilities. There is consequently a high presence of E. coli, fecal coli and other pathogens unfit for human consumption. An estimated 11 percent of the population have access to septic tanks while 76 percent use pit latrines (AfDB 2011). Untreated sewage is discharged into the ocean leading to coastal pollution. Broader gains in quality of water and sanitation services should decrease morbidity, increase longevity, reduce the burden of diseases, and increase household's disposable income. Both the World Bank and AfDB have made water

supply and sanitation a priority within their programs, and they plan to help the GOSL implement a new sector strategy. The Three Towns Water Supply and Sanitation Project will improve access to drinking water for up-country urban populations while the Rural Water Supply and Sanitation Project that kicked off in 2011 is supposed to improve access to water supply and sanitation services for the rural population.

An improved sanitation facility is one that hygienically separates human excreta from human contact through the use of flush toilet, connection to a piped sewer system, connection to a septic system, flush / pour-flush to a pit latrine, ventilated improved pit (VIP) latrine or composting toilet.

The government of Sierra Leone in her Agenda for Prosperity (2013) has set new ambitious water and sanitation targets to be 74 percent and 65 percent access by the population respectively by 2015. The first conference on water and sanitation was held in 2013 to develop policies as to how these targets can be achievable. To ensure that government meets her target, it has set up the following sanitation objectives: ensuring a sustainable development of sanitation service within an effective legal and institutional framework; improving sanitation facilities in both rural and urban communities through coordinated approaches like Community Led Total Sanitation (CLTS); to gradually change government's role from major service provider to that of coordinator and policy formulator; and to promote and scale up the CLTS and the Open Defecation Free (ODF) concept (Government of Sierra Leone 2008).

In 2008, Sierra Leone initiated a Community Led Total Sanitation (CLTS) with the sole objective of stirring up communities to take active steps in changing their sanitation practices. About 33 percent out of over 3000 communities have been declared Open Defecation Free (Community Led Total Sanitation n.d.). By 2012, a target of 50 percent of the entire country was declared to be Open Defecation Free. National and district task forces were set up to serve as a forum for advocacy, quality implementation, dissemination of CLTS to catchment communities and the promotion of hygiene.

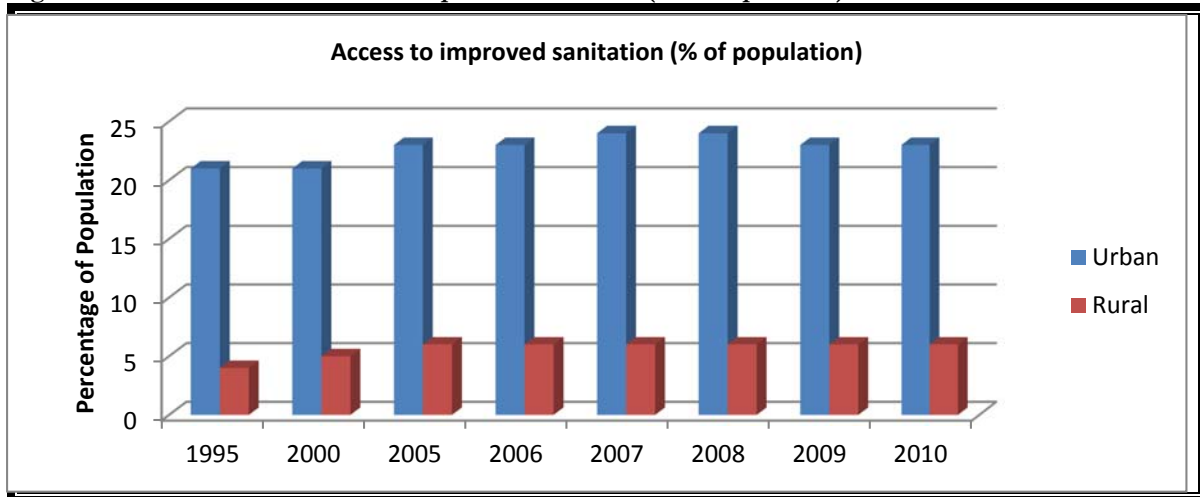
Demand for Sanitation facilities

The demand for sanitation takes into consideration the issue of access to improved sanitation including open defecation.

Access to Improved Sanitation

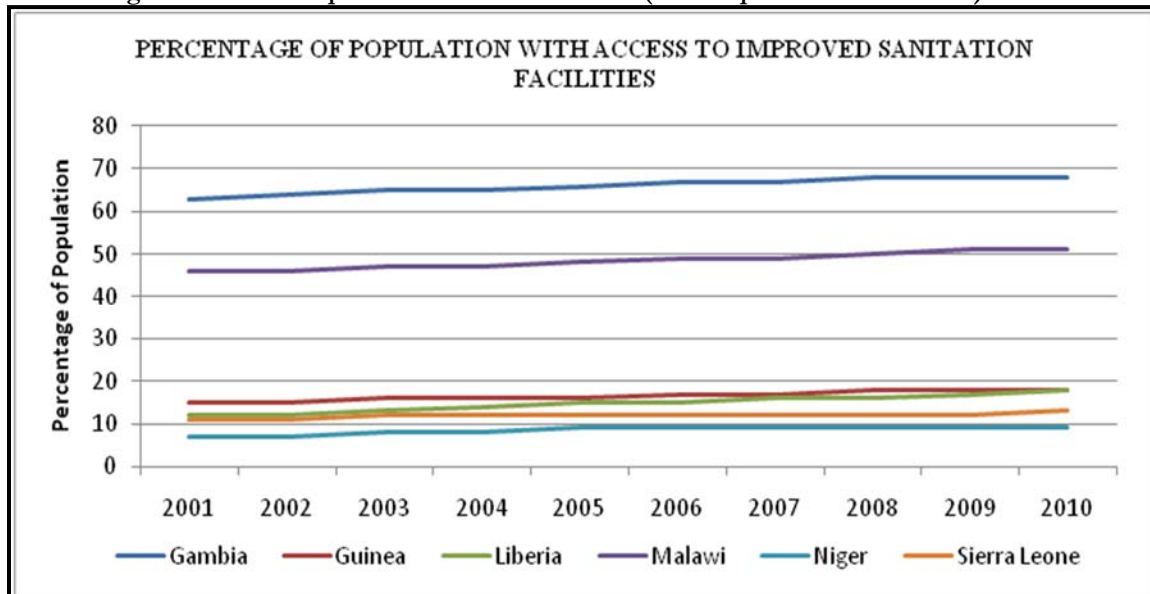
Figure 10-27 shows the proportion of the population with access to improved sanitation¹⁸. Over 90 percent of the rural population for the period under review do not have access to improved sanitation facilities. The urban population, albeit also having poor water and sanitation facilities, is far better than those in the rural areas.

Figure 10-27 Access to Improved Sanitation (% of Population) Sierra Leone



Source: World Bank, AfDB, WHO, UNICEF.

Figure 10-28 Improved Sanitation Facilities (% of Population with Access)

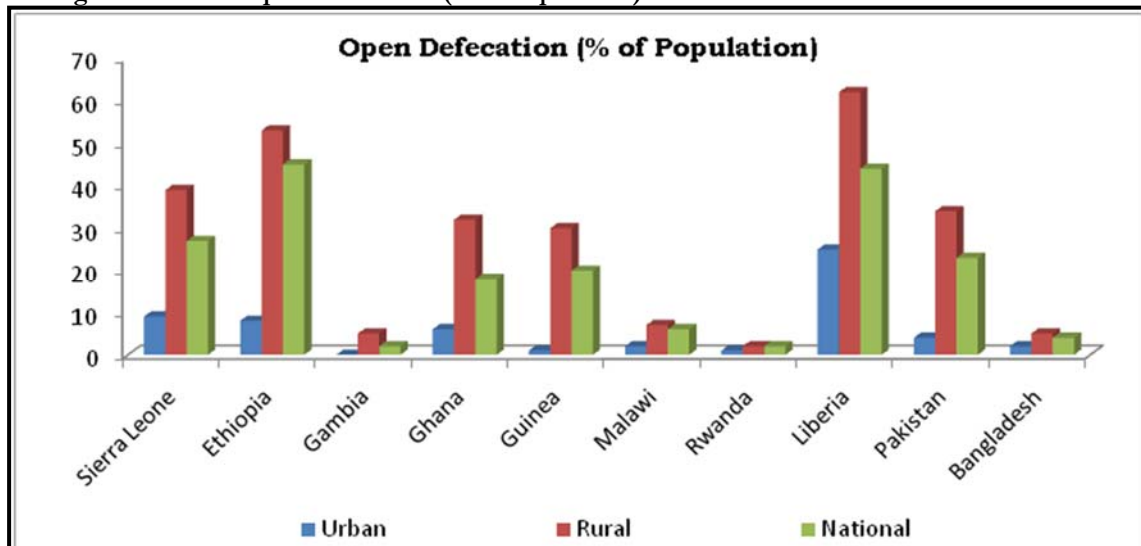


Source: World Bank

¹⁸Improved sanitation according to JMP refers to the use of the following; flush toilet, connection to a piped sewer system, flush/pour flush to a pit latrine, composting toilet, VIP latrine.

Comparing Sierra Leone with the comparator countries, we note from Figure 10-28 that the Gambia and Malawi have been doing well as over 50 percent of the population has access to improved sanitation facilities. However, the other four countries show a rather abysmal performance wherein on average less than 20 percent of the entire population has access to improved sanitation facilities. This shows that Sierra Leone's performance has been poor because three quarters of the population lack this vital facility. Sierra Leone seems to be almost at par with Guinea, Liberia and Niger. For Sierra Leone, according to the Joint Monetary Programme (UNICEF and WHO 2012), improved sanitation coverage for 2008 stood at 13 percent (24% in urban areas and 6% in rural areas) excluding those accessing shared facilities.

Figure 10-29 Open Defecation (% of Population)



Source: UNICEF/WHO JMP Report 2013

Figure 10-29 shows the percent of the population engaged in open defecation by location for comparator countries. We note that the issue of defecation is not that alarming for Sierra Leone as compared to some comparators, although it is worse than some others. There is vast difference between urban dwellers and rural people in all the comparators. For Sierra Leone, defecation is about 9 percent and 39 percent of urban and rural dwellers respectively. This shows the vast disparity between rural and urban areas in sanitation.

Cost of Sanitation

Poor sanitation and hygiene amongst the Sierra Leonean population has contributed immensely to its high mortality rates especially child, infant and maternal (UNICEF 2008). The cost of sanitation looks at the average health expenditure and incidence of water-borne and water-

related¹⁹ diseases. Table 10-14 presents average health expenditures per household including expenditures on water related diseases.

Table 10-14 Average health expenditures per household, 2011

District	Rural	Urban	Total	Total (2011 USD)
Kailahun	92,939	36,410	79,377	\$ 18.25
Kenema	195,219	98,953	122,190	\$ 28.10
Kono	94,314	213,900	184,003	\$ 42.31
Bombali	61,621	99,583	81,466	\$ 18.73
Kambia	118,124	290,000	127,436	\$ 29.30
Koinadugu	65,478	78,567	66,789	\$ 15.36
Port Loko	174,735	788,016	434,915	\$ 100.00
Tonkilili	196,277	256,269	203,972	\$ 46.90
Bo	290,919	186,727	223,186	\$ 51.32
Bonthe	237,453		237,453	\$ 54.60
Moyamba	164,578	139,439	157,730	\$ 36.27
Pujehun	130,395	65,000	129,098	\$ 29.68
Western other	472,475	100,274	312,377	\$ 71.83
Western urban		641,766	641,766	\$ 147.56
Total	131,591	300,261	207,644	\$ 47.74

Health expenditures on water-borne diseases **\$ 4.76**
Health expenditures on water-related diseases **\$ 24.70**

Source: SLIHS 2011 and Author's calculations

From Table 10-14 above, we see that 10 percent of total household health expenditure is on water - borne diseases. However, health expenditure on *water-related* diseases is about 50 percent of the average household health expenditure. This shows that water and sanitation related diseases accounts for about 61.7 percent of total average health expenditure. However,

Table 10-510-15 gives a clearer picture of the incidence of disease especially water borne and water related.

¹⁹Water related diseases according to the WHO are diseases caused by insects that feed or breed in water for example diseases like schistosomiasis, malaria, micro organism etc.

Table 10-15 Incidence of Diseases

Disease	Rural	Urban	Total	Water-borne?	Water-related?
Cholera	1.34	1.77	1.49	Yes	yes
Malaria	40.65	43.64	41.71	No	yes
Typhoid	3.53	6.98	4.75	Yes	yes
Hypertension	0.77	1.74	1.12	No	no
Common cold	18.55	13.71	16.84	No	no
STI	0.06	0.11	0.08	No	no
TB	0.08	0.08	0.08	No	no
Headache	16.47	11.93	14.86	Uncertain	uncertain
Diabetes	0.15	0.25	0.18	No	no
Diarrhoea	1.70	1.17	1.51	Yes	yes
Guinea Worm	0.50	0.54	0.51	Yes	yes
Dysentery	1.84	1.46	1.71	Yes	yes
Skin infection	1.28	0.74	1.08	Uncertain	uncertain
Eye infection	0.89	0.52	0.76	Uncertain	uncertain
River Blindness	0.07	0.01	0.05	No	yes
Other	12.13	15.34	13.27	Uncertain	uncertain
Total	100.00	100.00	100.00	9.97	51.73

Source: Author's calculations using 2011 SLIHS

Table 10-16 Wages Lost due to Water Borne and Water Related Illnesses

Indicator	Cost per Person/per Year	Total Cost/per Year
Wages Lost to illness/person/year	\$1.42	\$1,758,864.66
Wages lost to water-borne disease/person/year	\$0.14	\$175,358.81
Wages lost to water-related illness/person/year	\$0.73	\$909,860.69

Source: Statistics Sierra Leone 2011 and authors' own calculation

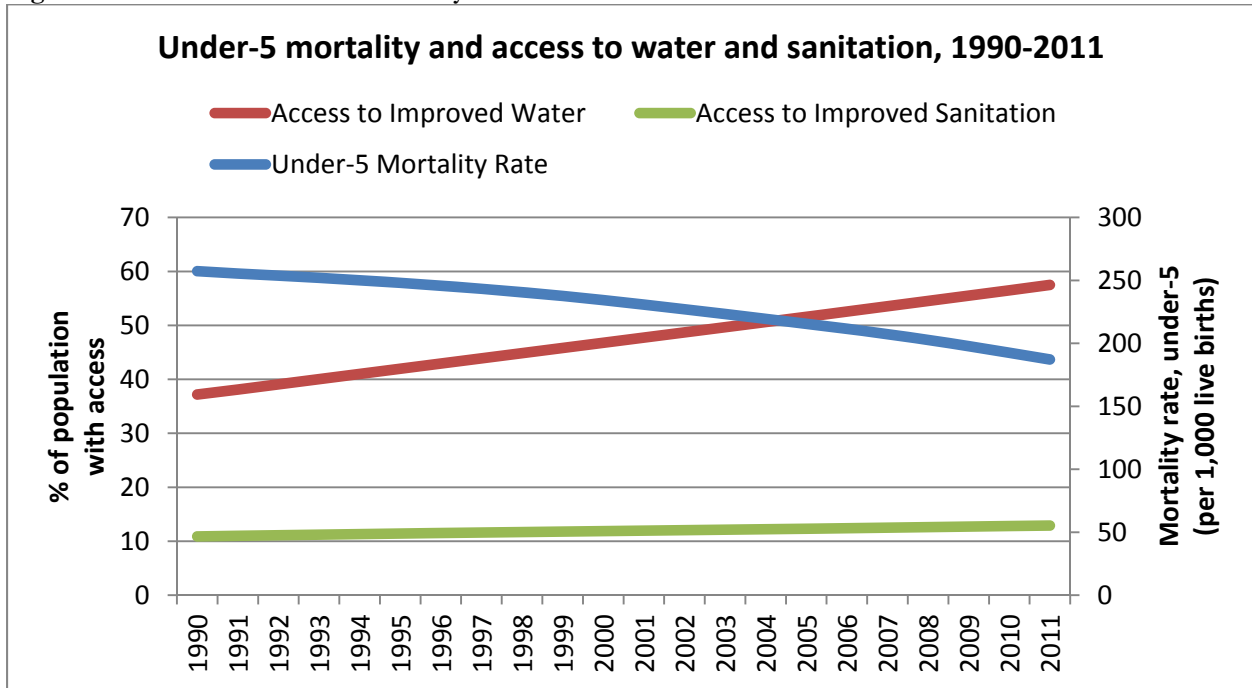
Table 10-16 present estimates of the amount of wages lost due to water related illnesses. We note from this table that the amount of wages lost as a result of illness is fairly high. However, when placed in context with respect to water-borne and water-related diseases, we find that wages lost amounts to 10 percent and 50 percent respectively of total wages.

Growth effect of Sanitation

Available data for the cost of water borne diseases is hard to come by. However, the unavailability of good drinking water and sanitation leads to high incidence of water borne and water related diseases. The most common and deadly amongst these diseases is diarrhea, a leading killer of children in Sub-Saharan Africa wherein a baby is about 520 times more likely to die from diarrhoea than their counterparts in Europe. In Africa, about 40 percent of the population lacks good drinking water – hence the high incidence of water borne and water related diseases. Improving access to clean water and sanitation would dramatically reduce

illness and death in poor countries: a clean water supply reduces diarrhoea-related death by 25 percent, while improved sanitation reduces it by 32 percent (AMREF USA n.d.). As shown in Figure 10-30, Sierra Leone's under-5 mortality rate has declined as access to improved water and sanitation facilities have increased.

Figure 10-30 Child mortality and access to water and sanitation



Source: World Development Indicators, 2012

Benchmarked Water and Sanitation Indicators

Table 10-17 below presents benchmarked water and sanitation indicators for Sierra Leone and averages for fragile states and low income countries.

Table 10-17 Benchmarking water and sanitation indicators

	Unit	Fragile States	Sierra Leone		Low Income Countries
		Mid 2000s	Mid 2000s	2007-08	Mid 2000s
Access to piped water	% pop	17.9	11.3	7.6	9.3
Access to stand posts	% pop	9.4	16.3	13.7	17.1
Access to wells/boreholes	%pop	54.5	44.3	49.8	39.3
Access to surface water	% pop	18.1	28.1	28.3	34.2
Access to septic tanks	% pop	11.2	6	3	4.7
Access to improved latrines	% pop	29	16	8	18.3
Access to traditional latrines	%pop	36.8	55	64	38.5
Open defecation	% pop	23.1	23	24	38.3
Domestic water consumption	litres/ capita/day	29.6		40	50.9
Revenue collection	% sales	94.6		77	94.1
Distribution losses	% production	31.5		40	34.8
Cost recovery	% total costs	57.2		61.4	89.5
Operating Cost recovery	% operating costs	80.1		85.8	125.2
Total hidden costs as % of revenue	%	169		29	67
		Sierra Leone 2007		Other Developing Regions	
Average effective tariff	U.S. cents per m ³	2.0		3.0 – 60.0	

Source: AICD water supply and sanitation database downloadable from <http://www.infrastructureafrica.org/aicd/tools/data>.

Access figures calculated by AICD using data from the 2000 Multiple Indicators Cluster Survey as published by the JMP in March 2010 and the 2008 Demographic and Health Survey

Note: A country is considered non-scarce water resources if the renewable internal freshwater resources per capita is greater than 3,000 mm Domestic water consumption, revenue collection, distributional losses, cost recovery, and total hidden costs only reflect the values for GWVC as there is not data available for SALWACO

— = data not available.

10.2.5 Challenges

Not much improvement has been made as regards access to improved water and sanitation in the period under review. This situation has worsened over the years. Access to the safest forms of water and sanitation declined over the years, especially during the war period when almost all water infrastructures were destroyed. This has worsened the sanitation situation, as majority of the population cannot afford hygienic drinking water. Between 2000 and 2010, access to pipe-borne water decreased whereas access to boreholes and wells increased. This was the same for rural provincial areas, urban areas and the capital, as most communities dug wells/boreholes as major source of drinking water. Within the same period, it is likely that a good proportion of the population have moved away from using septic tanks and improved latrines to shared latrines, a factor which has contributed to the high infant mortality rate in the country.

In terms of access to improved drinking water and sanitation facilities, there is a vast disparity between the urban and rural areas. People living in urban areas are about twice as likely to have access to improved drinking water as their counterparts living in rural areas. It is even worse when hygiene is taken into consideration. People living in rural areas are about three times worse off with regard to improved sanitation facilities than those living in urban areas. According to the Africa Infrastructure Country Diagnostic (AICD) report (2011) for Sierra Leone, whereas 20 percent of people living in urban areas have access to piped water, only 1 percent of rural population have access to piped water; flush toilets are used by about 10 percent of the population in urban areas and virtually non-existent in rural areas; and improved latrines are used by about 12 percent of the population in urban areas whereas in the rural areas only 6 percent of the population use such facilities.

The poor performance of the utility companies has also rendered such facilities unavailable and insufficient. GVWC is responsible for providing water to Freetown and its environs. However, it is in a poor state and faced with enormous challenges. For instance, government budgetary allocation to the sector is minimal, and as a result the company finds it challenging to meet its demands. In addition, some of the challenges that the company faces include poor revenue collection/generation mechanism, high wastage in the system, and under-pricing. According to Pushak and Foster (2011), GVWC recovers only 85 percent of its operational costs and 61 percent of its total costs, and the combination of technical losses (40 percent of production), under-pricing and collection inefficiencies results in hidden costs equalling 300 percent of revenues. The Sierra Leone Water Company (SALWACO) is the entity responsible for providing water to the provinces. Similarly, it is also faced with her own problems namely over reliance on donor funding; no mechanism for revenue collection/generation and low budgetary allocations.

All of these explain why water is a major issue in Sierra Leone, as a major part of the population cannot afford improved drinking water; partly leading to the high mortality rates in the country.

The paradox is that Sierra Leone is blessed with enormous water resources, but yet still her people continue to suffer from lack of improved drinking water due to poor infrastructure and institutional performance.

10.2.6 Conclusion

From the analysis above it is clear that the cost of water and the time spent to fetch water is high. This implies the shadow price for water is high. Households spend about \$66.22 per year (\$155.32 PPP) to get water for household and other uses. In terms of the impact of such cost on growth, we see that an equivalent of about 1.96 percent of GDP in 2011 was spent on getting water for household use. In terms of productive days, about 21 days is lost annually fetching water. Sierra Leone has one of the lowest percentages with access to improved water and among the highest with water insufficiencies in a typical month among the comparators.

With regards to sanitation, Sierra Leone is the second-to-last country vis-à-vis access to improved sanitation facilities, and the third highest among the comparators vis-à-vis population engaged in open defecation. Health expenditure on water borne diseases is about 10 percent of total household health expenditure.

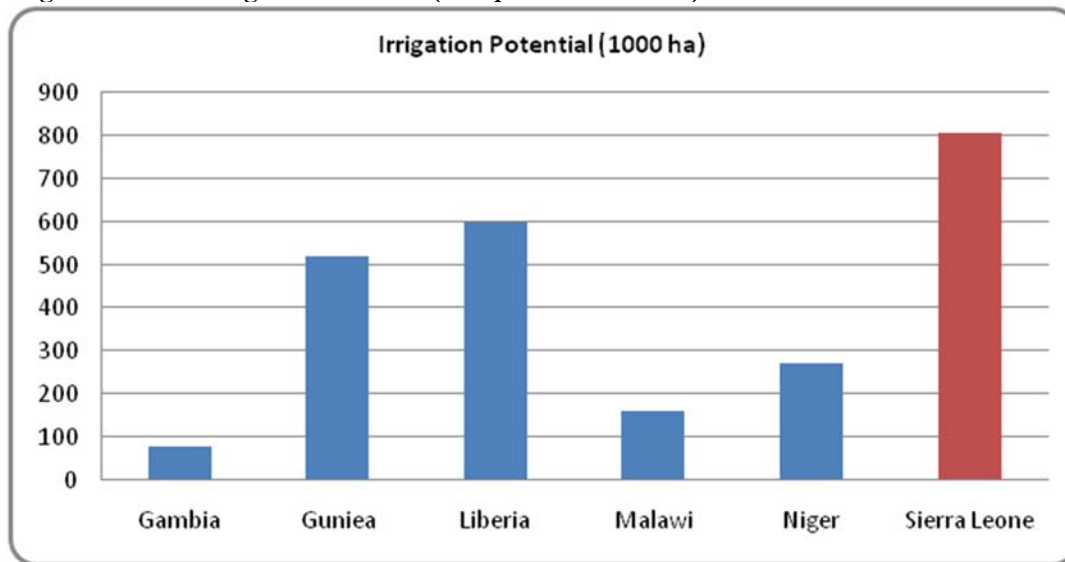
The key conclusion here is that the shadow price for water and sanitation is high. On the growth impact of water, a recent WHO report suggests that a \$1 investment in household water interventions can lead to a benefit of up to US\$60. Each dollar invested will yield a rate of return of about US\$ 2.786 for developing countries (WHO, 2010). On the growth test for sanitation, a baby in Sub-Saharan Africa is almost 520 times more likely to die from diarrhoea than one born in Europe. An improved access to clean drinking water will reduce illness and morbidity; diarrhoea-related death will be reduced by 25 percent, while improved sanitation by 32 percent (AMREF USA n.d.).

10.3 Irrigation

According to the Food and Agriculture Organization (FAO), Sierra Leone's irrigation potential by virtue of its supply of water was estimated at 807,000 ha in 1981. Sierra Leone covers 7.23 million ha of which 5.4 million ha are potentially cultivable. The breakdown of cultivable land into upland and lowland is given in Figure 10-30. It shows the relative importance of the four classes of lowlands, with a total area of 1.165 million ha: inland valley swamps (IVS), bolilands which are drainage depressions, mangroves in the coastal tidal zone, and annually flooded riverine grasslands. It should be noted, however, that these 1.165 million ha correspond to the total area of lowlands. Lowland suitable for development is about 807,000 ha, corresponding to the above irrigation potential, leaving aside environmental aspects. Sierra Leone's climate provides two distinct seasons: a dry season from December to March and a rainy season from April to November. Its total rainfall averages about 3,000 mm annually for the country. The

country has nine major and three minor perennial rivers that can be used for irrigation during the dry season, but are currently not utilized.

Figure 10-30 Irrigation Potential (Comparator Countries)



Source: FAO Aquastat 2012

Crop production is the main sub-sector as it contributes about three-quarters of agricultural value added, with rice holding the dominant position. Sierra Leone is mainly a rain-fed agricultural country, a status facilitated by its abundant water resources. Whereas 807,000 hectares which is around 11 percent of the country's area are physically suitable for irrigation, only 29,360 hectares are equipped for irrigation, equivalent to less than 5 percent of the cultivable land in Sierra Leone. As seen in the figure above the area proposed to be irrigated to bolster agricultural activity is quite high when compared to other countries.

According to the African Development Bank, Sierra Leone can become a major supplier of rice within ECOWAS if additional irrigation infrastructure enabled three crops a year in inland valley swamp zones (ADB 2011). Thus, a serious limiting factor to productivity in the agricultural sector is the lack of irrigation infrastructure, which confines production to one harvest per year instead of three. If a farmer wants to farm beyond the wet season, it would mean added labour to utilize traditional methods like water canals, and this does not increase productivity much. While this sounds like a legitimate impediment with regard to harvest under-productivity, it does not necessarily indicate a binding constraint. The country's natural endowment in water resources shows that, with investment, the current situation of low agricultural productivity could be greatly enhanced. Expanded investment in irrigation systems would enable Sierra Leone to tap into its comparative advantage especially in rice production and become a major exporter and supplier to neighbouring countries. In spite of this potential, irrigation cannot be classified as a binding constraint to economic growth.

10.4 Roads

Sierra Leone's road sector represents about 85 percent of the country's transport system. Approximately 95 percent of the inland transport of passengers and goods are carried out on roads (Road Safety Management Capacity Report, World Bank 2011). Generally, the roads fall into four categories:

Primary Roads: these roads also known as Class 'A' roads link major towns and cities across the country and form the central spine of the road network;

Secondary Roads: these are also known as Class 'B' roads and link the major urban cities and towns with other meso-level towns, trade centres and settlements;

Feeder Roads: these connect small and medium sized villages and settlements with Class 'A' and/or Class 'B' roads, depending on the level of proximity. This category of roads is important for the movement of goods and persons from major agricultural, fishing and artisanal mining areas to urban commercial centres;

Urban Roads: these comprise of road networks within urban cities and towns in all the districts of the country;

Others: this set of roads comprises of all other roads, and tracks that are not classified into any of the above categories. It includes private access roads and rural connecting tracks.

Sierra Leone has a public road network of approximately 11,700 km of which about 8,700 km are functionally classified in the national road system. Approximately 3,000 km consist of local, urban and other unclassified roads and tracks. The Government, between 2008 and 2012, increased public investments in infrastructure, with the road network being a principal target for improvement. This public investment programme targeted over 250 km of the national core road network including over 40 km of urban roads for improvement, such as routine maintenance and bitumen paving. The investments increased the total percentage of bitumen-paved roads in Sierra Leone from 2.6 percent in 2009 to approximately 9 percent in 2011. The national average road density is 0.16 km per km² or 2.35 km per 1,000 inhabitants (Sierra Leone Roads Authority 2011).

10.4.1 Road Network Quality

The quality of a country's road network is important for many reasons; a critical function of a good road network is that it reduces the 'distance'—travel time, cost of connecting people to markets, and cost of access to services and knowledge. While new and innovative means of

communication and information sharing reduces the need for physical movements, a good and reliable road transport network is imperative for flow of labour and tangible goods.

The quality of a road transport network is measured by a number of indicators; some of which include: (i) proportion of paved roads, as a percent of the total roads network; (ii) rural accessibility, which is measured by the percentage of the rural population that is within 2 km of an ‘all-season’ road; and (iii) average traffic levels. In addition, regular maintenance is necessary to preserve road conditions. A number of international development organizations have established indices that score and rank road infrastructure levels of countries, based on the stock and quality of the road networks. The following sections will analyse Sierra Leone’s road conditions in terms of these indicators as well as in comparison with other countries.

10.4.2 Road Pavement Conditions

The pavement levels of the national road network remains at low levels, both in absolute level terms as well as compared to other countries. An estimated 925km out of a total Class ‘A’ network of 2,332km is paved. This is evident by the fact that the roads linking the capital city of Freetown to 7 out of the 12 provincial districts are paved. Table 10-18 summarizes network classifications, indicating the share of the total network that has bitumen paving.

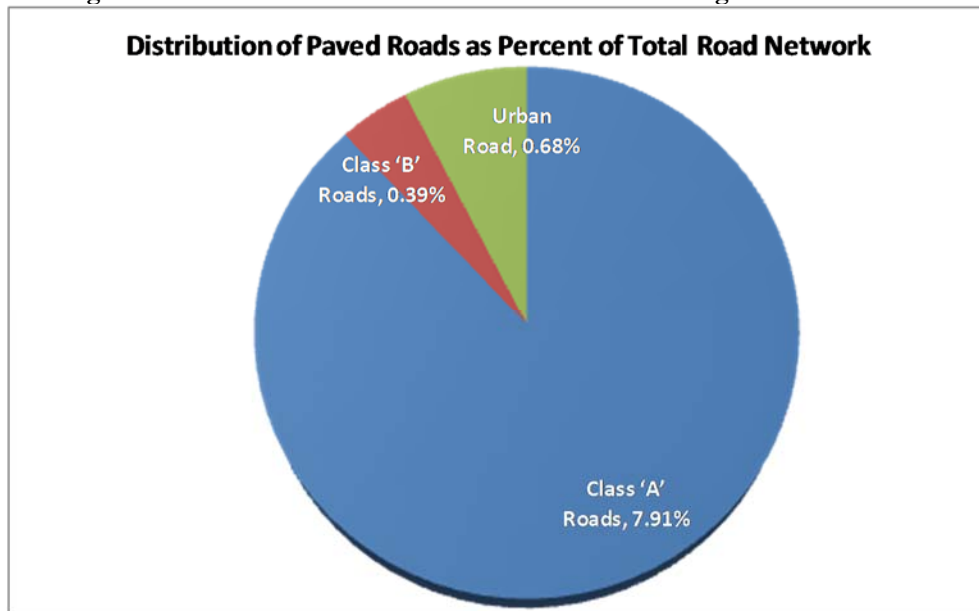
Table 10-18 Road pavement in Sierra Leone

Category of Roads	Total Length (Km)	Length Paved (Km)	Share of Category Paved (%)	Share of Total Paved (%)
Class 'A' Roads	2,332	925	39.67%	7.91%
Class 'B' Roads	2,091	46	2.20%	0.39%
Feeder Roads	4,277	-	0.00%	0.00%
Urban Roads	3,000	80	2.67%	0.68%
All Categories	11,700	1,051	8.98%	8.98%

Source: Sierra Leone Roads Authority 2011

While the above analysis shows that about 40 percent of the total Class ‘A’ network in the country is paved, the statistics should be understood in a wider context. It also shows that this amounts to only about 9 percent of the total road network in the country. Figure 10-31 shows that over 88 percent of a total of 1,051 km of all bitumen paved roads in the country are Class ‘A’ roads.

Figure 10-31 Distribution of Paved Roads as Percentage of Total Road Network

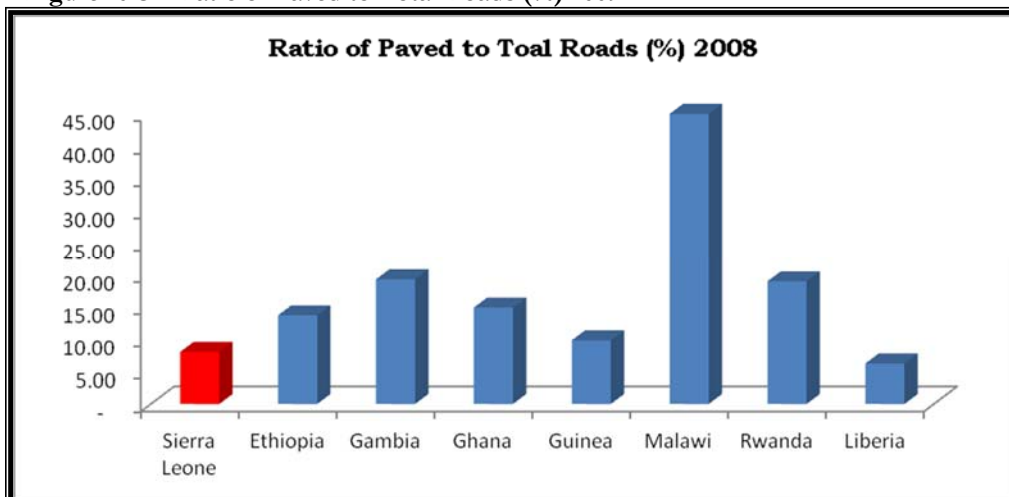


Source: Sierra Leone Roads Authority 2011

The level of Sierra Leone’s road infrastructure can better be analysed when compared to other countries that are at similar levels of development.

Figure 10-32 shows Sierra Leone with comparator countries. It shows that except for its neighbour Liberia, Sierra Leone’s ratio of paved roads to its total road network is amongst the lowest.

Figure 10-32 Ratio of Paved to Total Roads (%) 2009



Source: African Development Indicators 2011

Table 10-19 provides a summary analysis of various indicators of Sierra Leone’s road infrastructure compared to Low Income Fragile Countries (LIFCs), Resource Rich Countries (RRCs) and Middle Income Countries (MICs). Compared to LIFCs, Sierra Leone has a similar road density, but a lower percentage of the rural population lives within 2 km of an all season

road, indicating lower accessibility. Although only 9 percent of all roads are paved, 60 percent of the main road network is in good or fair condition, and 52 of the rural road network is in good or fair condition, which is on par with LIFCs.

In enterprise surveys, 30 percent of firms identified perceived transport quality as a major business constraint, which is also near the LIFC average. However, the percentage of paved primary roads with low traffic is much higher than in LIFCs at 69 percent. Although the chart refers to this as “over-engineering,” it could also suggest that demand for road travel is more suppressed in Sierra Leone than other countries, resulting in low traffic. However, it should be noted that low traffic does not always equal low demand for roads. Perhaps traffic is low because of the low accessibility of the rural population, or perhaps there are other underlying economic factors that reduce vehicle traffic.

Table 10-19 Sierra Leone Road Indicators benchmarked against Africa’s Low Income Fragile, Resources Rich and Middle-income Countries

Indicator	Unit	LIFCs	RRCs	Sierra Leone	MICs
Classified road network density	Km/1000km ² of land area	96	98	119	278
Total road network density {a}	km/1000 km ² of land area	145	128	126	318
GIS Rural accessibility	% of rural pop within 2 km from all season road	32	20	21	31
Main road network condition {b}	% in good/fair condition	55	68	60	86
Rural road network condition {c}	% in good/fair condition	56	61	52	65
Classified gravel road	% of classified roads gravel	27	15	30	20
Primary network over-engineering	% of primary network paved with 300 AADT or less	47	15	69	18
Perceived transport quality {d}	% firms identifying transport as major business constraint	32	27	30	18

Source: AICD Road Sector Database on 40 Sub-Saharan African Countries accessed June 2010 and SLRTA 2011.

a. Total network includes the classified and estimates of unclassified and urban networks.

b. Main network for most countries is defined as result of adding the primary and secondary networks.

c. Rural network is generally defined as the tertiary network and does not include the unclassified roads.

d. Source is World Bank-IFC Enterprise Surveys on 32 Sub-Saharan Africa countries

10.4.3 Road Quality Index

In addition to the conditions of various, the quality of the entire road network is important to ensure the accessibility of the entire population. The Global Competitiveness Report (2012) ranked Sierra Leone’s road transport infrastructure 116 out of 144 countries. Except for Guinea, Sierra Leone’s overall road transport index ranked lowest compared to other countries listed in Table 10-20.

Table 10-20 Comparative Analysis of Quality of Roads

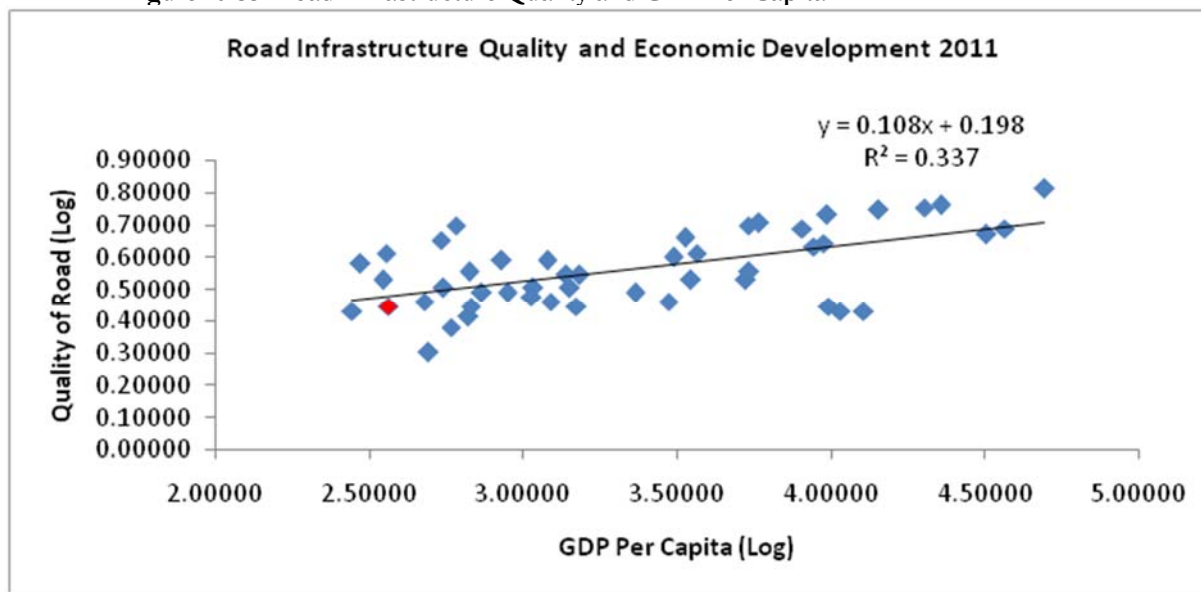
Country	Quality Index	Ranking: Over 144
Sierra Leone	2.8	116
Ethiopia	4.1	64
Gambia	4.5	51
Ghana	3.5	85
Guinea	2	140
Malawi	3.4	89
Rwanda	5	40
Liberia	3.8	76
Pakistan	3.9	73

Source: Global Competitiveness Report 2012

To further analyse the quality of the road transport infrastructure within a wider context of its relationship with economic development; we display the relationship between real income level per capita (2011) and the quality of roads index (2011) for various LICs. A regression line was fitted on a scatter plot of road infrastructure scores versus GDP per capita. Sierra Leone's position in this plot indicates its comparatively weaker infrastructure quality and GDP per capita, even in a cohort of LICs (

Figure 10-33), although it does not appear to be a significant outlier.

Figure 10-33 Road Infrastructure Quality and GDP Per Capita



Source: Global Competitiveness Report 2012 – 2013

10.4.4 Demand for Roads

Typically, a high demand for roads is associated with high levels of overland movements, whether due to trade flows or for movement of persons. The movement of vehicles can be

measured by traffic levels. High average traffic levels, therefore, indicate a high demand for roads. As mentioned earlier, low traffic levels may not necessarily be associated with a low demand for roads; it could also be symptomatic of poor road conditions or high fuel costs, which in turn limits the usage of the infrastructure for movement of goods and persons.

10.4.5 New Vehicle Registration Trends

Recent foreign direct investments in the mining and agribusiness sectors, and the concomitant logistical and other transport requirements, have led to significant increase in the utilization and demand for road transport infrastructure especially on class (A) roads. The number of newly-registered vehicles increased by 49 percent; from 17,795 in 2011 to 26,498 in 2012. This includes figures for newly-registered buses above 18 passengers which increased by 96 percent, Lorries with six tyres increasing by 76.7 percent while Lorries with more than six tyres, which are mainly used for movement of goods, increasing by 124.6 percent. Newly-registered tractors and trailers increased by almost 200 percent, reflecting increased economic activities in the agriculture, construction and mining sectors (Road Transport Authority 2012).

10.4.6 Average Traffic Levels

Table 10-21 shows the average traffic levels for classified paved and unpaved roads in Sierra Leone (2011). As shown Sierra Leone’s traffic levels for paved roads exceeds LIFC average by about 36 percent. This indicates a high demand for such roads in the country. The traffic levels for unpaved roads, however, are about 40 percent lower than the LIFC average.

Table 10-21 Sierra Leone Road Indicators benchmarked against Africa’s Low Income Fragile, Resources Rich and Middle-income Countries

Indicator	Unit	LIFCs	RRCs	Sierra Leone	MICs
Average Annual Daily Traffic	Paved Road Traffic	843	1,408	1,150	2,451
Average Annual Daily Traffic	Unpaved Road traffic	55	54	33	107

Source: AICD Road Sector Database on 40 Sub-Saharan African Countries accessed June 2010 and SLRTA 2011.

One hypothesis to explain this is that the utilisation of these roads may be lower because they are in bad and unusable conditions. Another hypothesis would be that major trade routes, which generate higher traffic, are more likely to be paved. It is also possible that the lower levels of traffic are related to the higher levels of poverty in rural areas, where the roads are less likely to be paved.

10.4.7 Road Network Accessibility

The majority of the rural populations in the country are involved in agricultural activities; this sector employs about 60 percent of the population and accounts for about 43 percent of GDP.

However, this population is challenged by the road conditions in the country. As shown in Table 10-200-22 most of the traffic is concentrated in and between Freetown and a few other major cities and towns. The rural areas face roads that are often unpaved, in bad conditions or inaccessible. This limits the level economic activities going on in these areas, potentially constraining growth. As shown in Table 10-22 about 1,131km of roads (approximately 9.6 percent of the total road network) are inaccessible for at least two months (approximately 16 percent) of the year during the peak of the rains.

Table 10-22 Regional disaggregation of periodically inaccessible unpaved roads

Region	Unpaved Road Network Length (Km)	Roads Inaccessible for > 2 months in the Year	
		Length (Km)	Share (%)
North	2,936.86	476.65	16.23%
South	1,422.23	342.33	24.07%
East	1,440.93	311.96	21.65%
Total	5,800.01	1,130.94	19.50%

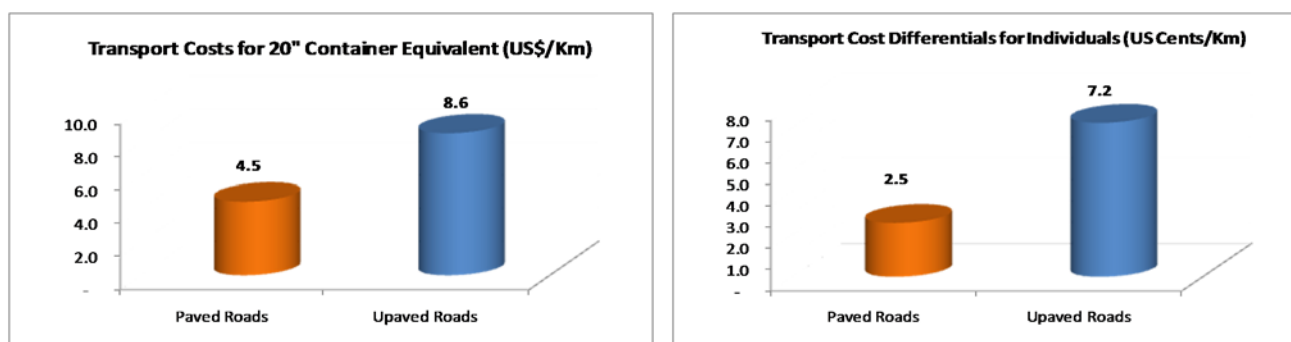
Source: Sierra Leone Roads Authority 2012

10.4.8 Transportation Costs

One consequence of a weak road infrastructure is high transportation costs. This is because where the transport infrastructure is good, operating and maintenance costs of vehicles are expected to be low and vice versa. Figure 10-34 shows comparative analysis of transport costs for individuals and commercial vehicles²⁰ in Sierra Leone, covering routes that have paved and unpaved roads. The figures show that individuals experience 2.85 times higher fares per kilometre for routes that have unpaved roads than those with paved roads. It also shows that it costs almost twice as much per kilometre to move a 20ft container on a route that has unpaved roads, compared to those with paved roads. While the movement of persons may not be very price elastic, the higher cost of moving items to and from rural areas with bad road conditions may adversely affect overland trade in these areas. This fact could also influence the traffic levels on secondary and feeder roads, which are only about 0.5 percent paved.

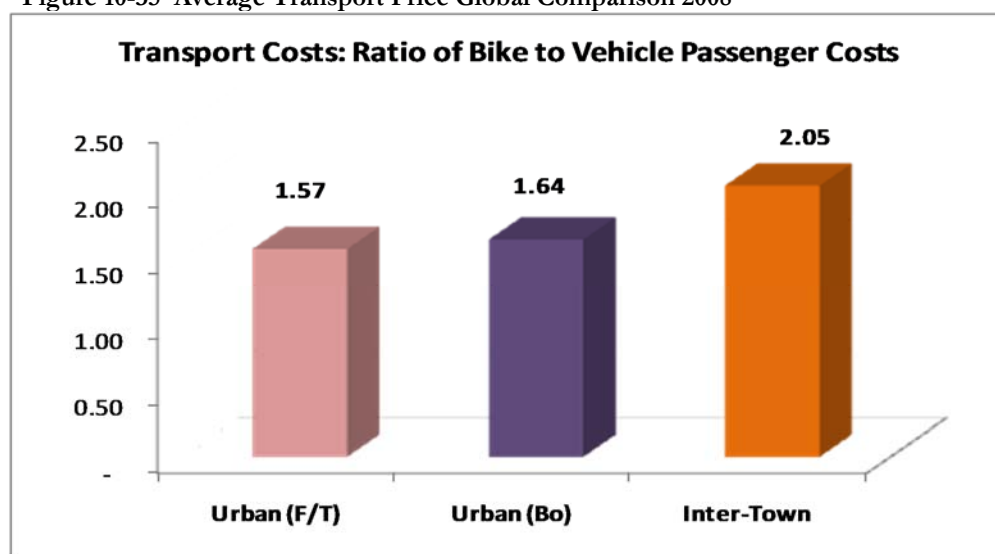
²⁰ Commercial vehicles that transport 20ft Container Equivalent

Figure 10-34 Transport Costs in US cents per Kilometers



Source: Transport and Motor Drivers Union 2012 and MCCU Calculations

Figure 10-35 Average Transport Price Global Comparison 2008



Source: Transport and Motor Drivers Union 2012 and MCCU Calculations

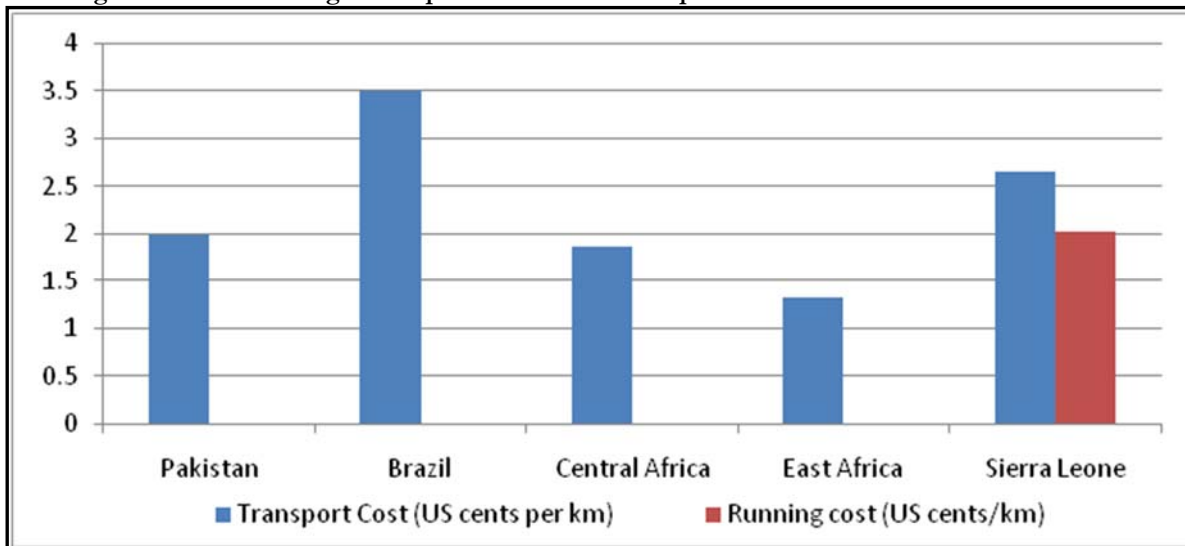
On the average, transport costs per passenger for motor bikes cost about 1.57 times more than that of using taxis²¹ and mini-buses in the capital city of Freetown; 1.64 times more in other provincial towns like Bo; and 2.05 times more for the routes linking towns and villages that are connected by class B and Class F roads. The higher costs could be attributed economies of scale in spreading the transport costs among fewer passengers on the motor bike, or perhaps it is because these bikes can travel roads that are not very accessible by other vehicles, and can travel faster on these bad roads than the other types of vehicles.

Figure 10-36 compares average transport costs in 2008 for Sierra Leone with those of other regions. It shows that transport costs were relatively higher in the country than the averages for East and Central African countries. These costs have gone up dramatically over the past 5 years

²¹The taxi comparison is made based on more people riding a taxi than a bike.

due increased demand created by the logistical needs of foreign companies in the mining, agribusiness and infrastructure sectors.

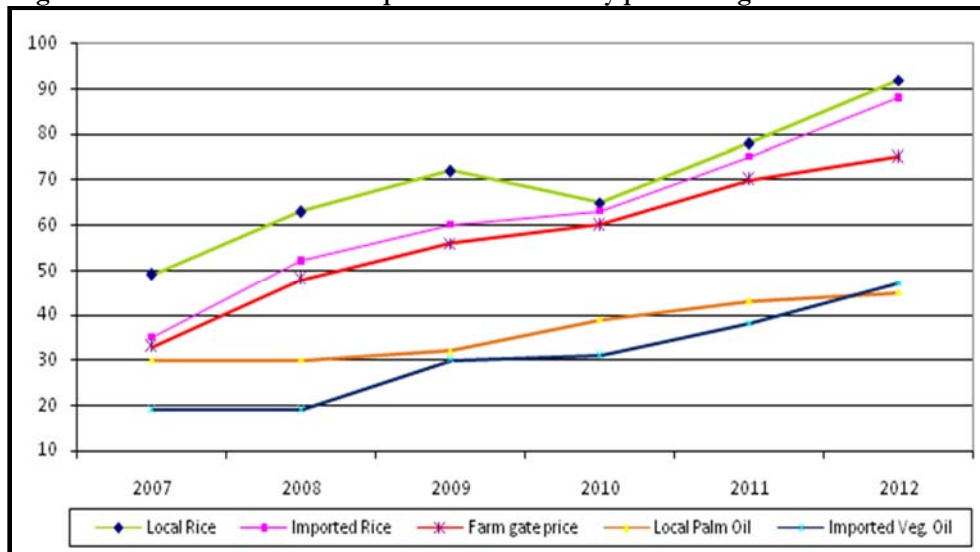
Figure 10-36 Average Transport Price Global Comparison 2008



Source: Trucking surveys for Africa (CNR for Europe) AICD 2008

The high cost of transportation in the rural areas (covering secondary and feeder roads) also has some effect on the competitiveness of locally produced items; even food items. Figure 10-37 shows trends in the prices of imported rice and vegetable oils, as well as those of locally produced rice and palm oil as recorded in the CPI basket. It shows that the price of locally produced rice has been consistently higher than imported rice prices, which have other costs like shipment, customs and other import taxes.

Figure 10-37 Consumer price index of locally produced goods in Sierra Leone



Source: Statistics Sierra Leone CPI report 2007- 2012

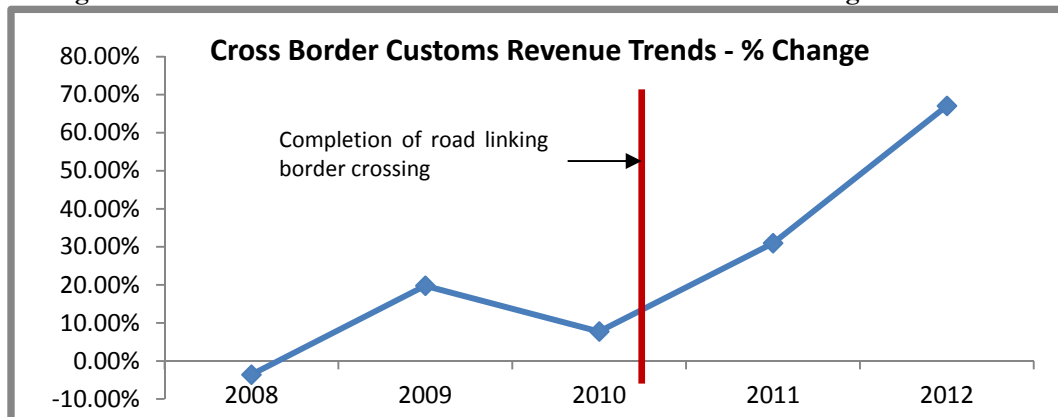
Figure 10-37 shows that whereas farm-gate prices of, for example, rice are consistently lower than the price of imported rice, market prices are high. In 2012, the average annual price for locally produced rice was 4.59 percent higher than imported rice. The margins were particularly high during the rainy season months of July to September, reaching 9.2 percent. These higher price margins could partly be due to high transportation costs to get them to urban markets. Because many of the rice producing areas are close to the borders of Liberia and Guinea, the products are exported to these countries, sometimes at lower prices than the price of imported rice in urban areas.

The suppressed demand for roads; the higher transport costs paid by those in rural areas and the revenues forgone by smallholder farmers who export to the neighbouring countries together indicate the high shadow price that the economy pays for the bad rural roads.

10.4.9 Growth Impact of Road Improvements

The road transport infrastructure plays a major role in the economy of Sierra Leone, especially in the area of distribution of agricultural produce and movement of goods and services, including exports and imports. An analysis of the trend in the movement of dutiable goods across the border with Guinea, illustrated that the bitumen pavement of the primary road linking Masiaka²² and the Guinea border post, saw a 70 percent increase²³ in customs revenues in twelve months of its completion. This is shown in Figure 10-38. Although Sierra Leone also experienced higher GDP growth in 2011 and 2012, the rate of growth of customs revenue is far larger.

Figure 10-38 Trend in Customs Revenue Collection on Border Crossing



Source: Sierra Leone National Revenue Authority 2012

²² This was the nearest point with Bitumen paved road before the road construction project commenced.

²³ Prior to the construction of this highway, a lot of people were also using sea transportation to travel to Guinea. Anecdotal evidence have shown that since the construction of the highway, a lot of people have stopped using the sea and have diverted to using the highway. In addition, since it is the only paved highway crossing to Guinea, drivers are driving over 200 km to use this highway than the less than 100km roads that are not in good condition.

The Development Research Group of the World Bank conducted a study in 2007 on “Road network upgrading and overland trade expansion in sub Saharan Africa”. As shown in Table 10-23 a 14 percent increase in the level of investments on the upgrade of 609 Km of the national road network saw an increase of 72 percent in volume of trade in Sierra Leone.

Table 10-23 Country Trade Impacts of Road Network Upgrading

Country	Investments (Mill US\$)		Change (%)	Network Upgraded (Km)	Change in Trade (%)
	Current	Upgraded			
Guinea	727	165.1	924	2,733	127
Mali	149.9	246.2	96.3	2,077	64
Ethiopia	67.5	115.2	47.7	4,239	69
Sierra Leone	19.5	33.5	14.0	609	72
Senegal	307.1	473.2	166.1	1964	54
Equatorial Guinea	35.6	526	17.0	109	48
South Africa	2500	60228	35228	8655	141

Source: Development Research Group-World Bank 2007

The proportionate increase in overland trade arising from a given increase in investment in improved roads was relatively higher for Sierra Leone, than other countries. It demonstrates that in a wider scheme of things, the potential growth impact per dollar spent or kilometre of road upgraded could be significantly high in Sierra Leone.

Although cross-border trade may result from improvements to primary roads, secondary and tertiary roads provide a different set of benefits. Casaburi, Glennerster and Suri (2012) examined a European Union-sponsored rehabilitation of rural feeder roads in Sierra Leone between 2009 and 2011, and found that the road improvements led to a reduction in the price of rice and gari in local markets and a 59 percent reduction in transport costs per kilometre. They also found that, “Market-specific characteristics, both on the demand side (distance from major market centres) and on the supply side (productivity), significantly affect the magnitude and the direction of the price effect of improvements in rural road infrastructure” (Casaburi et al 2012). The price reductions resulting from improved roads were larger for markets that were further away from large towns. However, the effects of road improvements raised prices in high productivity areas, suggesting that the improved roads draw traders to areas with greater production. The higher density of sellers, in turn, results in higher prices in those areas. This study therefore provides evidence that there are significant efficiency gains from improving road network in Sierra Leone.

However, Casaburi et al also found that search frictions, such imperfect information or existing business relationships, significantly affect the benefits of rural road improvements. For instance, if a farmer in Eastern Province has an established relationship with a trader across the border in Guinea, he may continue to sell to that trader, even if the road to Freetown is good, because it would cost him more to search for a new buyer and the returns are more uncertain. This suggests that road improvements may need to be complemented with other activities to induce growth.

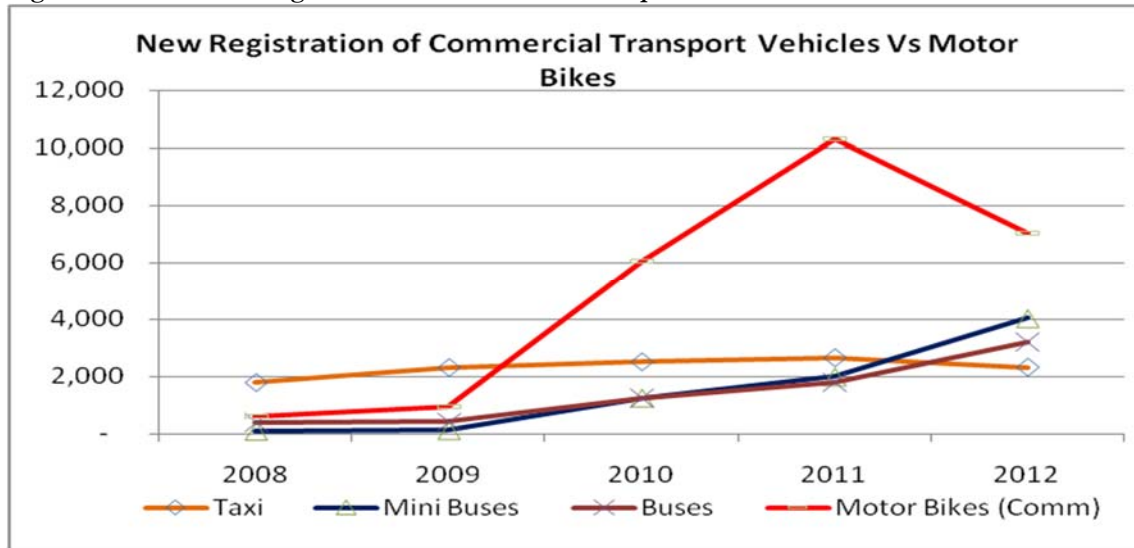
10.4.10 Circumventing the Road Constraints

Economic agents invariably find ways to circumvent the occurrence of a constraint. On the demand side, economic agents would bypass the constraint by resorting to alternative means of transport if conventional vehicular transport is unavailable or is too expensive. On the supply side, some agents would create the infrastructure for private use, if the constraint is critical to its survival. In the case of Sierra Leone there is ample evidence that private agents circumvent this constraint through the extensive use of second best alternatives. These are elaborated on under ‘demand- and supply-side circumvention’.

10.4.11 Demand Side Circumvention

Between 2008 and 2012, there has been a general increase in the number of vehicles registered in the country. This could be on account of the recent and on-going investments in major urban roads and inter-city roads. There was a significantly higher increase in the registration of new motor bikes for the period, compared to taxis and buses used for passenger transport. Whereas these bikes are used primarily for transportation of persons, there are extreme cases particularly in the rural areas, where they are used for transporting goods. In such cases, anecdotal evidence suggests that the farmers receive low farm gate prices for their produce because traders take account of the high unit transportation costs.

Figure 10-39 New Registrations of commercial transport vehicles vs. motor bikes in Sierra Leone



Source: Sierra Leone Roads Transport Authority (SLRTA) 2012.

The increased number of registrations of motor bikes is an indicator of increasing demands for that means of transportation. Indeed the comparative per passenger transport costs for bikes that are less safe, are nearly double those of taxis and other forms of passenger transport, although the purchase price of a motor bike is likely lower. This suggests that other ‘non-price’ factors

underlie the increasing demand – such as greater destination access and faster travel times. A major drawback of some of these alternatives is that they cannot be used for the transport of bulk agricultural or other goods between these rural areas and major market centres.

However, the increasing use of motor bikes may not be unique to Sierra Leone. Although data on vehicle registrations can be hard to find, data that is available shows motor bike registrations increasing in other countries in West Africa. In Ghana, registration of motorbikes have increased from 6,440 in 2000 to 36,097 in 2010, when they outnumbered the registrations for private automobiles (Ghana Ministry of Transport 2012).

10.4.12 **Supply Side Circumvention**

Apart from private transport and logistics companies who typically require good road infrastructure to thrive, large mining companies that export ore and other heavy metals, large scale mechanized agribusiness firms and industries that rely on the movement of bulk inputs all require good roads to ensure effective operations and minimize operating costs on repairs and maintenance. A number of these foreign companies have constructed road transport infrastructure for private use, as a means of circumventing the poor roads, or as a safety measure, at high costs. This is not uncommon in the mining sector around the world, although it reinforces the notion that Sierra Leone’s roads are insufficient to transport bulk goods. Table 10-24 summarises the investments that have been made by some of these firms in the past 4 years.

Table 10-24 Private Road Transport Infrastructure

Name of Company	Sector	Type	Description	Length (Km)
African Minerals Limited	Mining	Roads	New	66.7
African Minerals Limited	Mining	Railway	New + Upgrade	126 + 74
London Mining Company	Mining	Roads	New	40
ADDAX Bio energy	Agriculture	Roads	New + Upgrade	120 + 100
SOCFIN	Agriculture	Roads	New + Upgrade	271 + 31
Sierra Rutile Limited	Mining	Roads	New + Upgrade	52 + 30
VIMETCO	Mining	Roads	New + Upgrade	9.5 + 30

Source: Sierra Leone Roads Authority (2012)

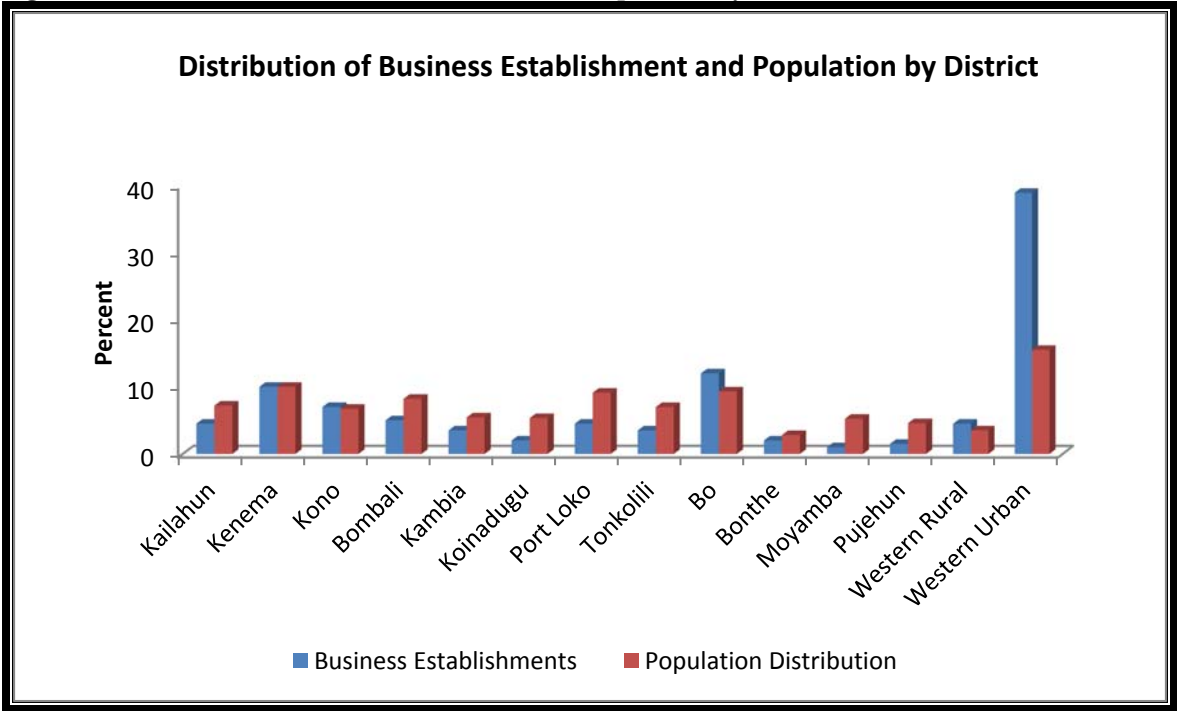
10.4.13 **Roads and Private Enterprise**

As a general principle, economic agents that are more reliant on a particular constraint are less likely to survive, where the constraint is binding. Prior to 2009, Sierra Leone did not have major transportation or logistics companies, in part because the bad road conditions made repair and maintenance costs high. Private transportation businesses had limited fleet sizes, with an average maximum of 4 vehicles. The State-owned road transportation company, which transported only individuals, experienced several breakdowns in its fleet and had to be subsidized to stay in

business. The poor road conditions in the agricultural and artisanal mining areas, coupled with the poverty levels in these rural areas, did not create incentives or offer viable options for private investments in transportation services to these areas. The advent of large foreign companies and their willingness to pay high transport prices triggered the entry of some medium sized foreign transport companies and a few small sized domestic companies. It is difficult to get specific data on transport and logistics companies over a reasonable period of time. However, the existence of specialized road transport companies with commercial fleets has been a recent phenomenon.

It can be observed also that the concentration of business enterprises around the country mirrors the pattern of overall quality of roads and general infrastructure levels. This could suggest that businesses are looking for areas where there are markets; but more importantly areas that are more accessible in transport of goods over land. As seen in Figure 10-40, a majority of registered business establishments (39.0%) are in the Western Area Urban District. This is followed by Bo with 12.0 percent; Kenema with 10.3 percent; Kono with 7.3 percent and Bombali with 5.2 percent. This indicates that about 73.8 percent of business establishments in Sierra Leone are concentrated in the capital and 4 Districts, many of which are in the urban centres of the Districts, rather than being dispersed throughout.

Figure 10-40 Distribution of Establishment and Population by District



Source: SSL, Census of Business Establishments (2005) and Statistics Sierra Leone

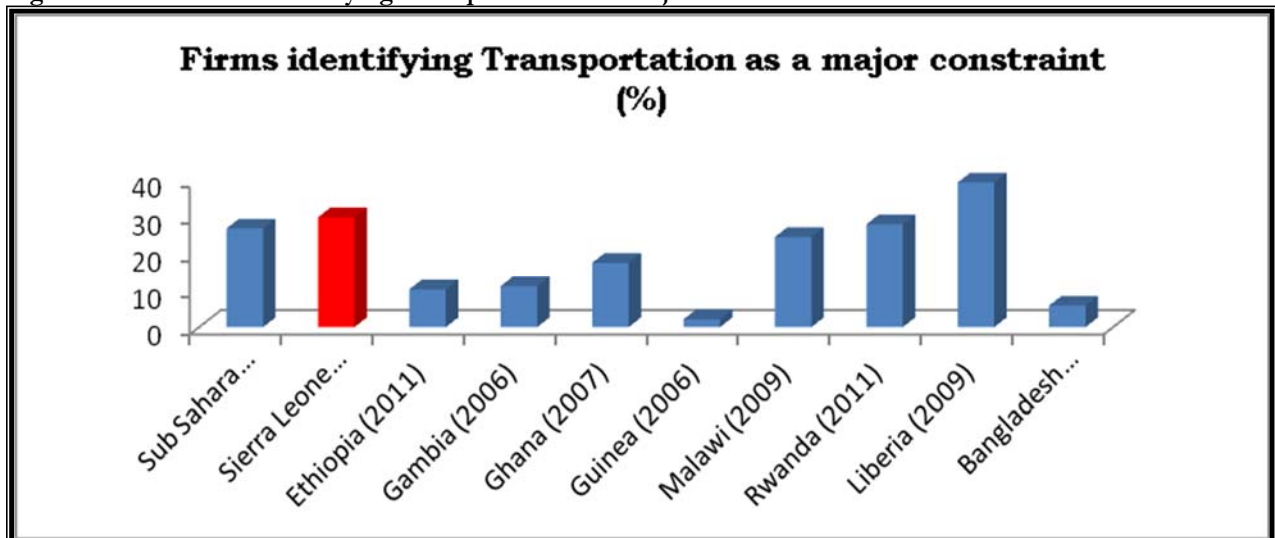
This concentration of businesses near roads could also result from a host of other factors, including closeness to population centers, access to other infrastructure, or proximity to other factors of production. It is also likely that roads are strategically placed in areas where economic

growth and business activity is expected. Casaburi et al (2012) reported that the EU selected roads for rehabilitation based on a set of criteria that included economic production. The 2011 Africa Infrastructure Country Diagnostic states that infrastructure development in Sierra Leone generally is driven by minerals and population. The reality probably is that both the location of businesses and roads are endogenous – businesses locate in areas where there are roads and road planners build and maintain roads in areas where there are a lot of businesses.

10.4.14 Enterprise Views on Transport as a Constraint

A cross-country analysis of private enterprise responses on the issue of road transport as a possible constraint to their business shows that businesses in Sierra Leone reported one of the highest indications of transportation as a constraint (Figure 10-41).

Figure 10-41 Firms identifying Transportation as a major constraint



Source: World Bank Enterprise Survey Data

10.4.15 Policy and Institutional Constraints

If poor roads are restricting transport, why is that the case? Obviously, many roads were damaged or destroyed during the war and are only now being rebuilt. However, neglected maintenance may also be a factor. Although Sierra Leone has a Road Fund for maintenance and rehabilitation purposes, it has been perpetually underfunded. According to Pushak and Foster (2011), the fuel levy was \$0.10 per liter in 2010, but the estimated optimal level to sustain maintenance was \$0.24 per liter. The optimal levy may not be politically or socially palatable due to high fuel costs, but until then road maintenance will remain vulnerable to fiscal uncertainty (Pushak and Foster 2011).

10.4.16 **Conclusion**

Based on the foregoing analysis, we believe the following are likely:

1. The economy is paying a high shadow price for weak road transport infrastructure, as evidenced by:
 - Relatively high transportation prices compared to other countries
 - Suppressed demand and utilisation as reflected in low traffic and vehicle density levels
 - Higher marginal transport prices paid by the large majority of the population living in rural areas that have limited access to well-maintained roads
2. Economic agents are making a lot of efforts to circumvent the problem by resorting to alternative means of transportation or by creating the infrastructure for private use; this is evidenced by:
 - Significant increase in the demand for motor bikes as a means of transportation compared to other forms of passenger transport in both rural and urban areas, despite significantly higher per passenger transport costs for the motor bikes
 - Investments in private roads and railways by large companies to move their goods on roads that would otherwise be unusable
3. There is evidence that investments in roads can generate proportionately higher levels of trade in the economy. This is in addition to other social objectives of accessing services such as health care, education and law enforcement services.

10.5 Sea Ports

Situated in the port city of Freetown, Sierra Leone's Queen Elizabeth II quay is the largest natural harbour in Africa. Strategically located along the western coastline, the port is the main hub for international trade. There are three privately owned and operated smaller ports - the Nitti harbour situated along the southern coastline, Pepel and Tofayim in the north. Unlike the Freetown port, the two smaller ports have been re-constructed and redesigned to facilitate export for large private mining operators. The Nitti harbour is used by Sierra Leone Rutile Ltd. and Vimetco Ltd. for the exportation of rutile (for titanium) and bauxite respectively. The Pepel harbour is used by African Minerals Ltd. to export iron ore. London Mining Co. Ltd. uses the Tofayim port as a loading point for its barges carrying iron ore to bigger vessels anchored off-shore.

Currently, Sierra Leone is rebuilding and modernizing its main sea port. Because of mismanagement and inefficient operations leading to high financial losses to the Government of Sierra Leone, the Sierra Leone Ports Authority in consultation with the National Privatization

Commission implemented a major reform of port management, with the first major step being the concessioning of container/multi-purpose cargo-handling facilities at the main sea port in Freetown. Following public bidding processes, Bollore Africa Logistics, a French registered company listed on the Paris Stock Exchange with container management and stevedoring concessions at sea ports in North and South America, Europe, the Middle East, Asia and Oceania signed a 20 year concession agreement with the Sierra Leone Ports Authority for the management of the port's container terminal and stevedoring activities.

Though port services at the quay is slow and waiting time for clearing of goods is relatively long, Table 10-25 shows that the Freetown port's performance on a range of standard indicators against other West African countries is largely in line with that of other ports in the sub-region:

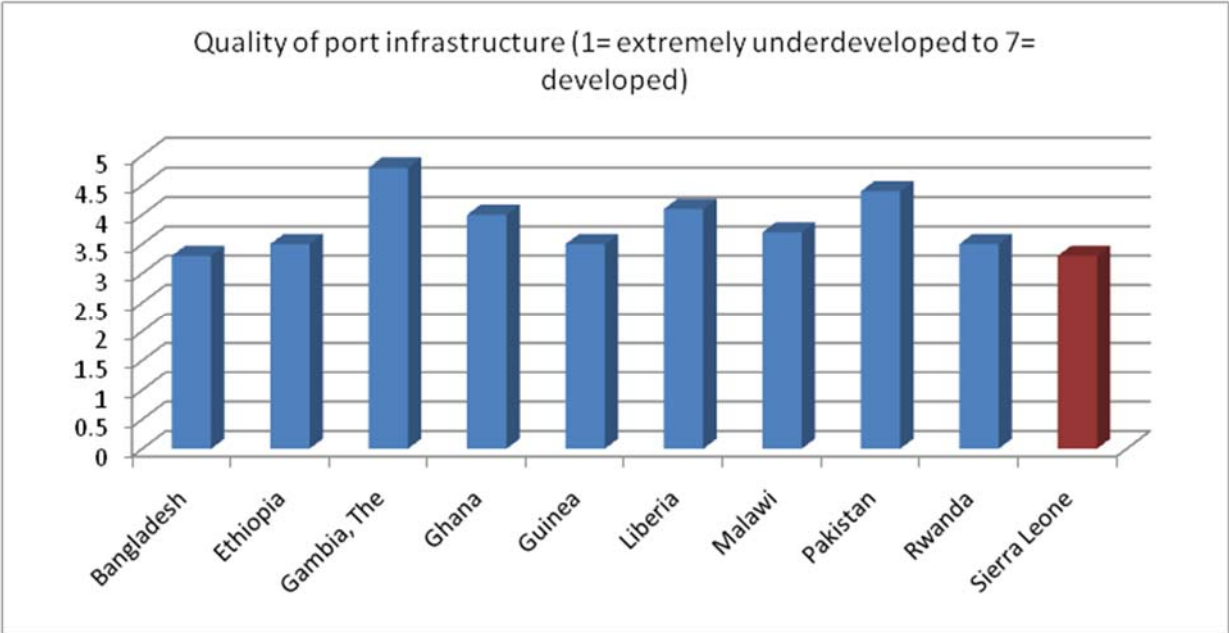
Table 10-25 Benchmarking port indicators: Freetown as compared with selected ports

	Freetown Sierra Leone	Monrovia Liberia	Cotonou Benin	Abidjan Cote d'Ivoire	Tema Ghana	Apapa Nigeria	Harcourt Nigeria	Dakar Senegal
Capacity								
Actual container handled (TEU/year)	45,000	50,000	158,201	500,119	420,000	336,308	7,900	331,191
General cargo handling capacity ('000 tons/year)	7,000	700,000	2,500		8,500	5,000	2,000	
Efficiency								
Container dwell time average (days)	15	15	12	12	25	42		7
Truck processing time for receipt and delivery of cargo (turn-around time) - average (hours)	5	5.5	6.0	2.5	8.0	6.0		5.0
General cargo vessel pre-berth waiting time - average (hours)	48	3	48	3	9.6	36	38	24
General cargo vessel stay (turn-around time) average (hours)	12	3	48	2	48	41	46	60
Container crane productivity (container per hour)				18	13	12		
General cargo crane/gang productivity - average tonnes per hour)	12	16	15	16	14	9	8	
Tariffs								
Average general cargo handling charge, ship to gate (US\$/tonne)	NA	200	180	260	168	155		160
Average dry bulk handling charge, ship to gate or rail (US\$/tonne)	5.5	10.5	8.5	13.5	10	8	8	15
Average liquid bulk handling charge (US\$/tonne)	3.3	4	5	5	3			5

Source: Ocean Shipping Consultants 2009

Similarly, in Figure 10-42 we see that as scored by the global competitiveness report, Sierra Leone has a score of slightly above 3 out of a maximum of 7, and this is in line with the average for comparator country scores. The deepwater port of Queen Elizabeth II in Freetown serves as the country’s most important gateway for trade in Sierra Leone. Though one of the finest natural harbours in the world, the port infrastructure was badly damaged during the civil conflict and the country has lost out on converting its natural advantage to competitive advantage in the competition for coastal or trans-shipment traffic from other regional ports like Lomé and Dakar. Nonetheless, there have been endeavours to redevelop the ports and the desired outcome is the development of several berthing facilities across the country that meets international standards to improve the movement of cargo in and out of the Ports.

Figure 10-42 Quality of port infrastructure



Source: Global Competitiveness Report 2012-2013

In Ghana for example, just one port features 12 berthing systems and 2 quays with a storage capacity of over 50,000 tons whereas Sierra Leone has only 6 berthing facilities serving the whole country with minimal storage capacity. In 2010 the port handled 27,918 units of 40ft containers and 20,582 units of 20ft containers whereas in 2011 the port handled 37,773 units of 40 containers and 28,342 units of 20ft container. Sierra Leone has the potential to improve its facilities given its natural deep water harbours across the country. Increasing the number of berthing facilities around the country will allow for the efficient unloading and loading of materials. This will be reflected in how quickly one can get cargo off the ship and out of the Port. Furthermore, by building the capacity of the Port to take advantage of both automated systems and improved staff capacity, a highly efficient facility can be developed that can become the centre of economic activity in West Africa given the prime location of Sierra Leone.

Private sector investment in port rehabilitation is arguably indicative of the country's inability to meet the growing demands for sea port services. In order to circumvent the challenges facing import and export at the main sea port in Freetown, mining companies have had to make huge investments into rehabilitating and re-designing small ports at Pepel and Nitti to facilitate exportation of their mineral cargo and importation of other goods needed for their mining operations. This investment increases cost for companies that can make such huge capital investment but discourages others that have the desire to invest but cannot do so because of high capital investment that is required. An efficient port in terms of fostering trade would go a long way in boosting private investment in several sectors and also economic growth. Ongoing reforms to expand the port to accommodate very large vessels especially used by the mining companies for export are well on course. Though the port has some huge challenges to overcome to position it to make full use of increased economic activity in the country, it is not in any way at the moment constraining private investment.

10.5.1 Challenges

Despite the start of the implementation of the landlord port model reform, huge challenges remain to get the Queen Elizabeth II sea port to operate efficiently and reduce the difficulties in doing business in Sierra Leone. The port system needs improved security; although steps have been taken to comply with the International Ship and Port Facility Security Code (ISPS) through training of security officers and installing CCTV and a security scanner, security remains porous with reported incidents of theft of goods at the quay. Also, during Sierra Leone's decade long war, the sea port sustained substantial damage mainly because it was used as a launch pad for military strikes by armed naval forces of the West African Peacekeeping Force ECOMOG and later, British forces against rebel forces. Moreover, the port needs huge investment and rehabilitation to improve on efficiency in handling and delivering cargo.

11 Natural Capital

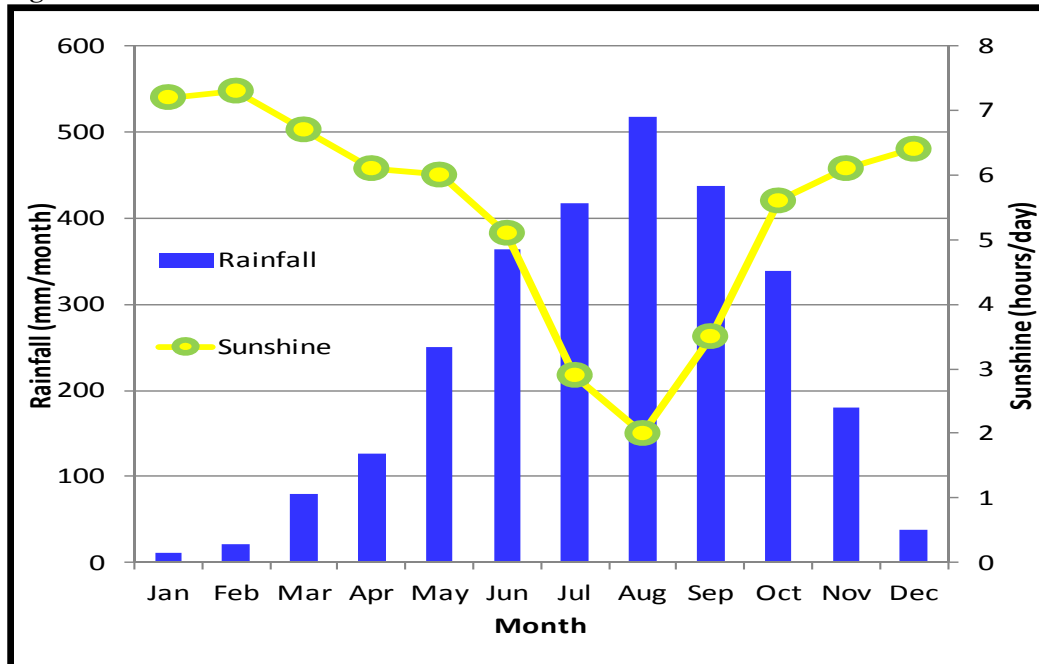
A country's drive to achieving inclusive growth can be seriously hindered by natural resource limitations or unfavourable geographical characteristics, as these can hold back viable investment opportunities in the economy. The absence of land, water or minerals could reduce the productivity of other factors of production and curtail investment and needed wealth creation. Sierra Leone is relatively well endowed with vast natural resources and mineral wealth and as such has natural comparative advantages.

11.1 Geography

Sierra Leone is located in West Africa and borders the Republic of Guinea to the north and northeast, Liberia to the south and southeast and the Atlantic Ocean to the west and southwest. It has a western coastline about 402 km long. The country covers about 73,326 sq.km with a total population of about 5.9 million people. It has seven major rivers – Great Scarcies, Little Scarcies, Rokel, Sewa, Jong, Moa and Mano, mainly running from the north and northeast to the south and southwest into the Atlantic Ocean. The River Rokel spans about 385 km, making it Sierra Leone's longest river, while the Mano River marks the country's southeastern boundaries with Guinea and Liberia. The coastal plains are relatively gentle and comprised of estuarine swamps, terraces, alluvial plains and beach ridges. The interior lowland plains extend from the coastal terraces in the west to the east of Sierra Leone, occupying approximately 43 percent of the land area.

Sierra Leone has a tropical humid climate with two distinct seasons –the wet season from May-October and the dry season from November-April. Temperatures vary from 25 degree to 34 degrees Celsius, although they can be as low as 16 degrees Celsius, especially at night during the Harmattan season (a short period of time between the end of November and the middle of March where a dusty wind blows from the Sahara to the Gulf of Guinea when it is relatively cooler).

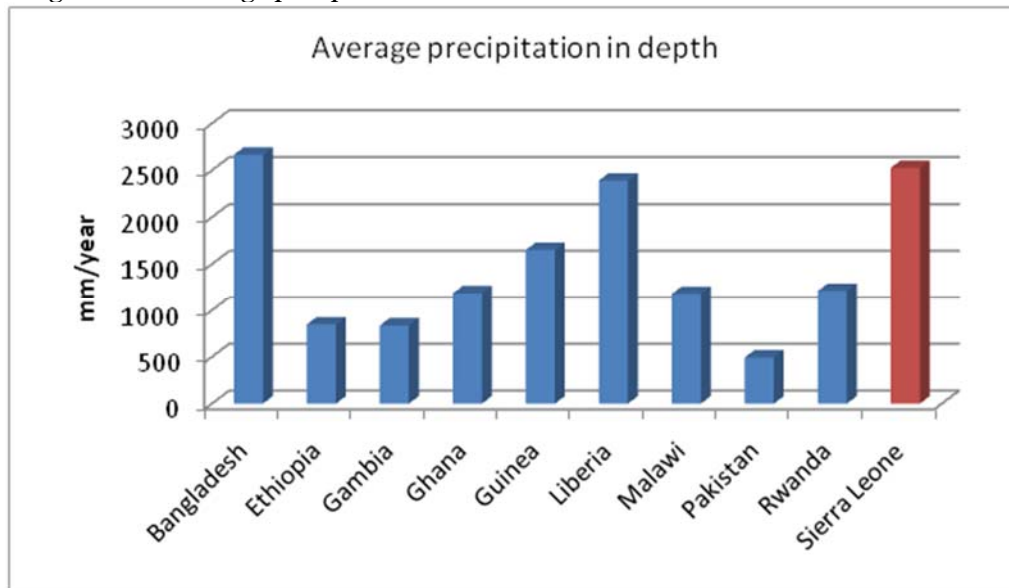
Figure 11-1 Rainfall in Sierra Leone



Source: Meteorological Surveys Department; 2009

Figure 11-1 shows that there is an inverse relationship between the dry season and the rainy season particularly as it relates to sunshine and rainfall. As the sunshine decreases from January to its lowest point in August, rainfall inversely increases. The mean annual rainfall variability is about 20 percent. The pattern is unimodal, with most of the rainfall occurring from May to October. The heavy rains in the wet season usually result in high discharges and runoff, which range from 20 percent to 40 percent of the total annual rainfall. These heavy rains impact roads infrastructures as graded (not paved) roads are easily eroded after a few heavy downpours. Similarly paved roads are also impacted with craters of potholes begin to emerge and get worse over time, especially when not maintained. As presented in Figure 11-2, average precipitation in Sierra Leone is higher than all of its comparators except Bangladesh.

Figure 11-2 Average precipitation



Source: FAO Aquastat, 2012

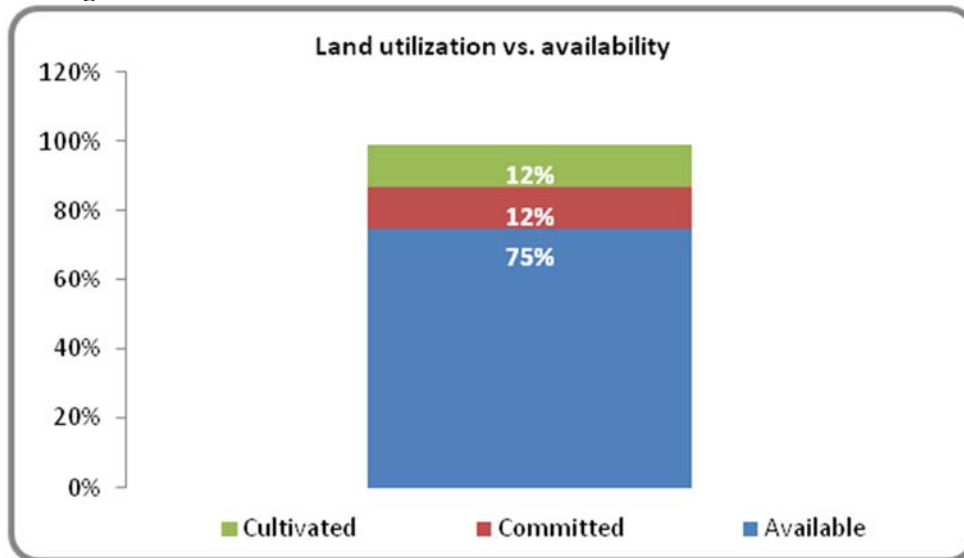
Sierra Leone has easy access to and from the season the West African coast. The main sea port, the Queen Elizabeth Quay, is situated in one of the largest natural harbours on the continent. The port is strategic to international trade, and it serves as the main import and export hub for Sierra Leone and connects vessels with other sea ports along Africa’s Atlantic coastline.

11.2 Land Resources

Land is an important natural resource in Sierra Leone, and it is the main source of livelihood of majority of the population, especially in rural areas where agricultural activities remain the primary source of income. The agricultural sector relies on land as a basic input for crop cultivation, which in turn is affected by how well farmers maintain the soil, water and living resources. The sector provides close to 70 percent of total employment. Each year thousands of hectares are put into rice cultivation, both on the uplands and lowlands. Sierra Leone has significant amounts of arable land with a huge tract of arable land still available for cultivation as presented in Figure 11-3.²⁴

²⁴ It is worth noting that these figures regarding the percentage of “available” land have been disputed and may not account for the “bush fallow system” of subsistence agriculture practiced throughout Sierra Leone. Under this system, fields are cultivated for only a few years until soil fertility is depleted, and then are left fallow for 10 to 15 years. As such, a larger percentage of land may be “in use” by smallholder farmers, albeit left intentionally fallow per prevailing farming practices.

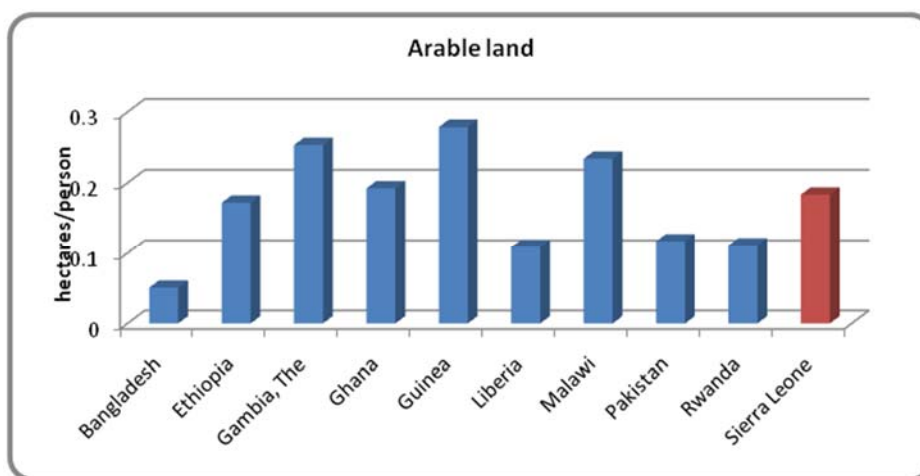
Figure 11-3 Land utilization



Source: SLIEPA

Sierra Leone has a surface area of 71,740,000 hectares of land, of which 1,235,000 is cultivable. Of the piece cultivable, 1,100,000 hectares is used for arable (temporary or short term crops) farming and the remaining 135,000 used for the cultivation of permanent crops. Moreover, as presented in Figure 11-4 the arable land per capita is also reasonably high when compared with comparator countries.

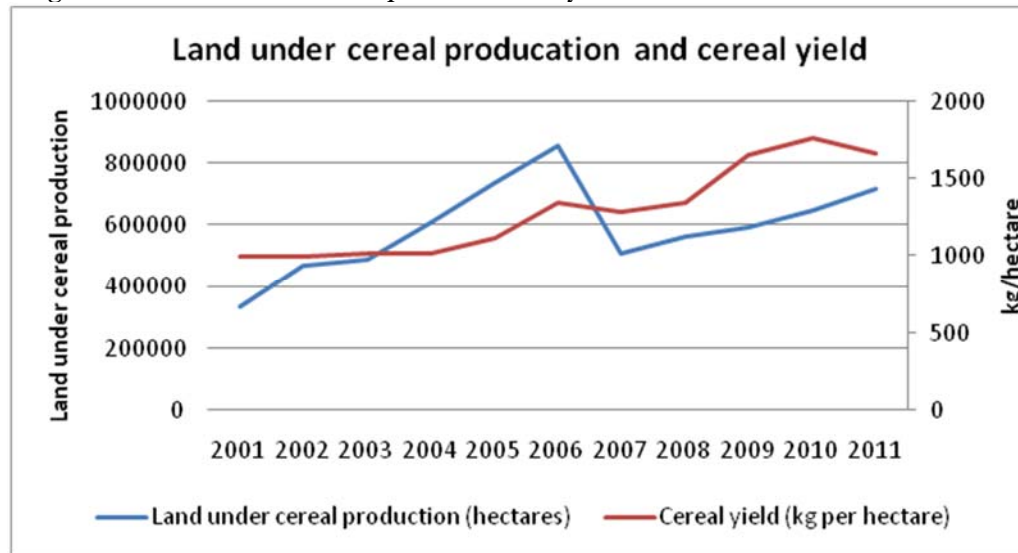
Figure 11-4 Arable land per capita



Source: FAO, Aquastat

The land under cereal production and cereal yields has both increased in recent years, as shown in Figure 11-5. The combination of these two outcomes means greater production and enhanced food security for the country.

Figure 11-5 Land under cereal production and yield



Source: World Bank, WDI

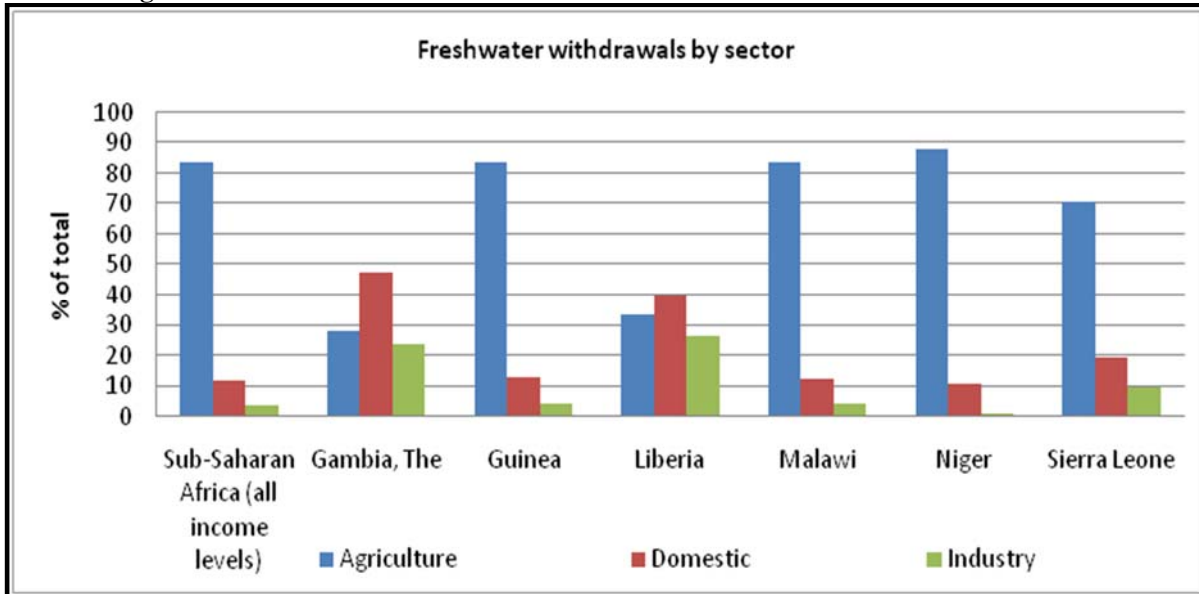
Sierra Leone has substantial croplands. However, due to reasons including overgrazing, bushfires and shifting cultivation, the land has been degraded over the years. Some of these practices are widespread and recurrent all over the country. Also, there have been issues in the other uses of land such as housing and real estates, where deforestation in the hills surrounding Freetown have caused soil erosion and landslides. Similarly, artisanal mining creates land degradation and deforestation as seen in vast areas in the district of Kono.

A comprehensive Land Policy has been formulated and a Lands Commission Bill is being prepared by the Ministry of Lands, Country Planning and the Environment. The policy attempts to provide the framework to “ensure equal opportunity of access to land and security to tenure in order to maintain a stable environment for the country’s sustainable, social and economic development” (Ministry of Lands). The land policy, if effectively implemented, will ensure sustainable land use and enhance land capacity and conservation. This topic is discussed in the Micro Risks chapter of this report.

11.3 Water Resources

With an abundance of water in Sierra Leone, reaching 30,960 cubic meters according to a World Bank study (REF), the country easily has one of the largest quantities in the continent. This volume is sufficient to meet demand, with the ability to draw water from rivers, lakes, springs and underground aquifers. These water sources are used for a number of purposes including drinking and other domestic uses, industrial, and agriculture as shown in Figure 11-6.

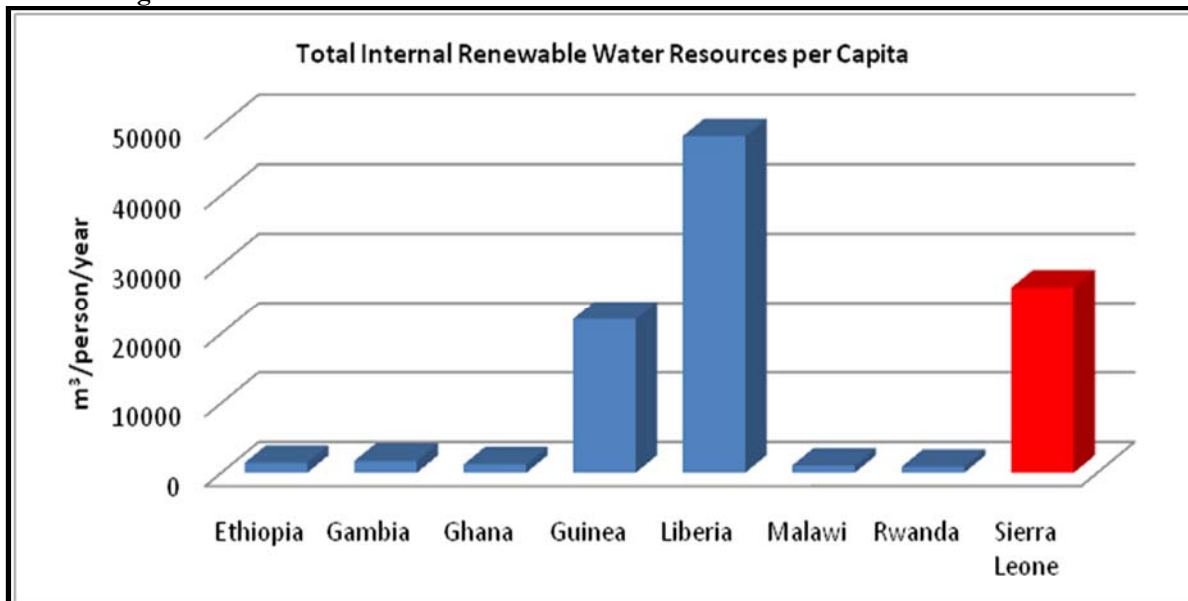
Figure 11-6 Freshwater withdrawals



Source: FAO, Aquastat

Water is withdrawn depending on the need, quantity available, or geographical area. In rural areas, about 30 percent of the population obtains water from surface sources including rivers, or streams and ponds. In towns and cities, rivers and dams are the main supply to running taps. Again, when benchmarked against comparator countries Sierra Leone has demonstrated high sufficiency and low depletion of fresh water resources per capita as indicated in the diagram.

Figure 11-7 Renewable Water Resources



Source: FAO, Aquastat

Because the population of Sierra Leone grows at an annual rate of 3.4 percent there is ample stress on her water resources. This causes the demand for drinking water particularly, in urban towns and cities, coupled with the fact that agricultural production also poses a similar stress on water resources. A clearly defined management of water resources is essential to allocate the growing use of water.

Generally, we can say that the availability of water is not a binding constraint to private investment and growth in Sierra Leone as the supply exists. Problems in the delivery and use of water are due to infrastructure or institutional issues, rather than a deficiency in water as a natural resource.

11.4 Minerals

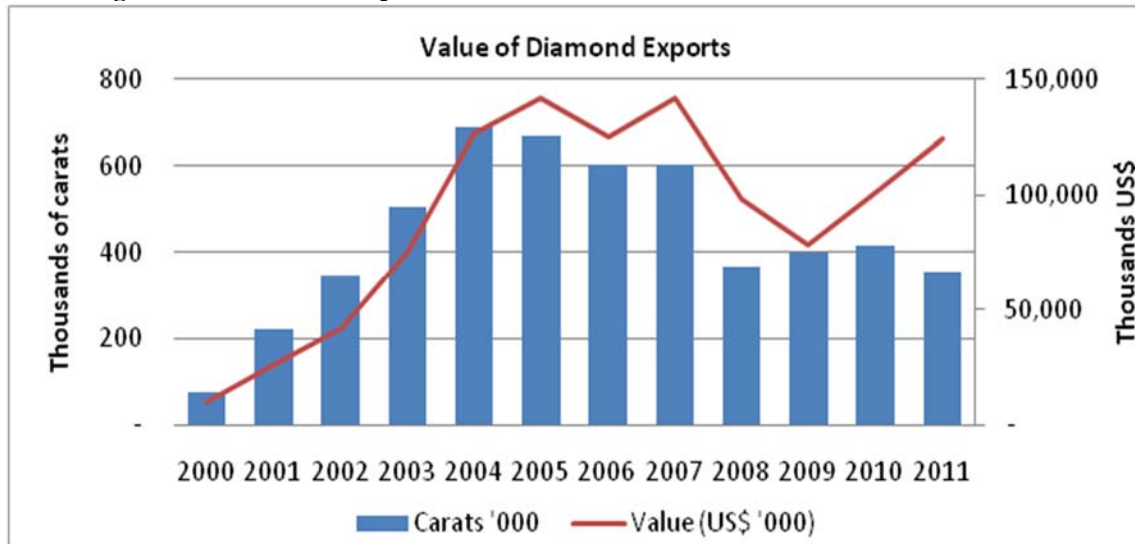
Sierra Leone has significant deposits of mineral wealth including diamonds, bauxite, rutile, gold, iron ore, platinum, cassiterite, ilmenite, lignite, clay, dimension stone, nepheliesyenite, columbite-tantalite and ilmenorutile, and asbestos. Revenues from diamonds, gold, iron ore, bauxite and rutile are the main contributors to Sierra Leone's economy from our mineral resources. Rutile is a high-grade titanium ore, which is processed into titanium dioxide overseas for use mainly in paint, paper and welding rods. Sierra Leone is known for its particularly high-grade rutile.

The large scale production of non-precious materials – rutile and bauxite; large scale production of precious minerals – diamonds; and the artisanal and small scale production of precious metals – diamond and gold; make up the mineral sector in Sierra Leone. While Sierra Leone is world-renowned for her diamonds, it is important to note that she also has one of the largest natural rutile and iron ore reserves in the world. Primarily three sub-sectors make up the mineral sector in the country. These are namely, artisanal and small-scale production of precious minerals – mainly diamonds and gold; large-scale production of non-precious minerals like rutile and bauxite; and large scale production of precious minerals –such as diamonds. While diamonds are the most popular of Sierra Leone's mineral resources others do also play a major role in the sector; particularly with regard to iron ore and rutile reserves.

Mining has really played a significant role in the Sierra Leonean economy over the years. It contributed up to twenty percent of the gross domestic product (GDP) from about 1991 to 2001. In addition, during that same time, they generated 90 percent of registered exports and about 20 percent of fiscal revenues.

Diamonds account for nearly 80 percent of all exports and 35 percent of GDP as shown in Figure 11-8.

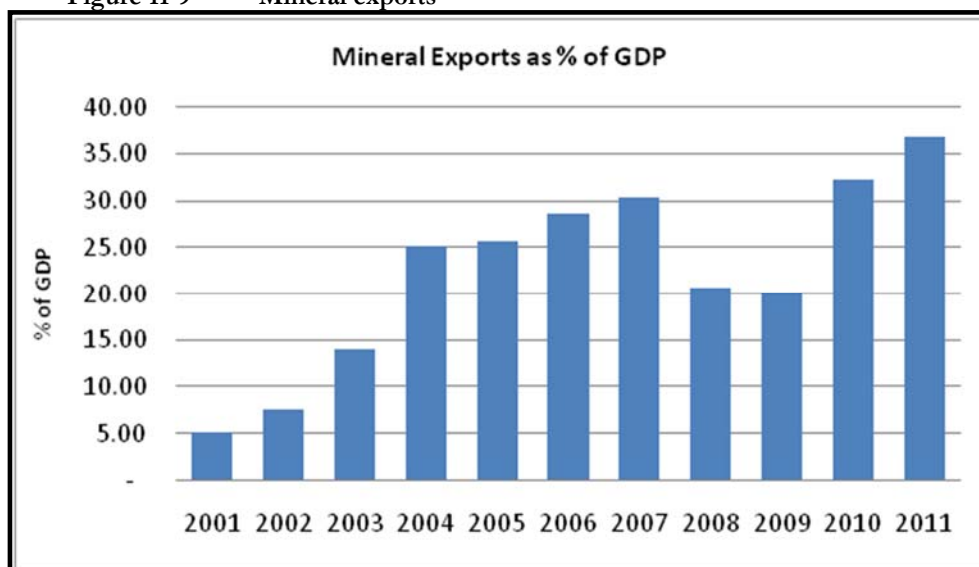
Figure 11-8 Diamond exports



Source: Ministry of Trade and Industry

Sierra Leone’s recent economic recovery is seemingly coming from the rejuvenated diamond sector (coupled with other areas like bauxite and iron ore). In the years under consideration (2001 – 2011), the total value of diamond exports increased almost 400 percent. As seen in Figure 11-9, there was a slight fall in exports mainly in response to the fall in demand for the mineral during the recent global financial squeeze. As the production and export of diamonds have increased, so has the export of gold. In the period for which data is available, 2008 to 2011, export values of gold increased from US\$2,418,475 to US\$6,394,682, an increase of about 164 percent.

Figure 11-9 Mineral exports



Source: Statistics Sierra Leone

The recent resumption of iron ore production and exports has also improved the country's export earnings. Between 2011 and 2012, for example, royalty from iron ore exports paid to the government by the two major iron ore producing companies amounted to US\$8,801,354.04 (National Minerals Agency). For rutile, the total royalty payment made in the first quarter of 2012 was US\$359,054.99 whereas royalty payment for bauxite for January to September 2012 amounted to US\$253,492.85.

The mining sector constitutes Sierra Leone's most important foreign exchange earner and government revenues from on-going large-scale operations are projected to grow significantly after 2013. Recent oil discoveries off the coast will likely constitute another significant source of income for the coming years.

Although the literature shows that countries abounding in natural resources have generally performed poorly compared to resource-poor countries, these resources do not necessarily condemn Sierra Leone to bad economic performance. The presence of minerals is not a constraint to private investment in Sierra Leone. Indeed, the evidence on FDI flows to Sierra Leone suggests that most of it has been to the resource sector. The challenge for Sierra Leone is to manage these resources properly.

From the forgoing, it is evident that Sierra Leone indeed has vast mineral resources. These resources have continued to determine the path and pattern of economic growth in the country, depending mainly on how they are being valued, used and managed which in turn depends on the economic policies and institutions in place. The management of Sierra Leone's extractive sector and of its contributions, particularly from mining, to government's revenue and the economy, will be crucial in determining the country's development path over the next few decades.

However, the strong links between mismanagement of the country's mineral wealth and conflict have been established and since the end of the war tremendous efforts have been made by the state and its international and local development partners to reform the mineral sector of Sierra Leone. In 2009, parliament passed the Mines and Minerals Act (MMA) which is the key mining legislation that improved on and replaced the Mines and Minerals decree of 1994. It also reviewed the licensing regime, rebalanced fiscal benefits and legislated on new issues such as the environment and the contribution of mining revenues to the development of communities impacted by mining operations. Building on the MMA, the review and renegotiation of Mining Lease Agreements with mining companies have been completed. This process has been successfully managed with appropriate assistance from external expertise and without negatively affecting the investment climate.

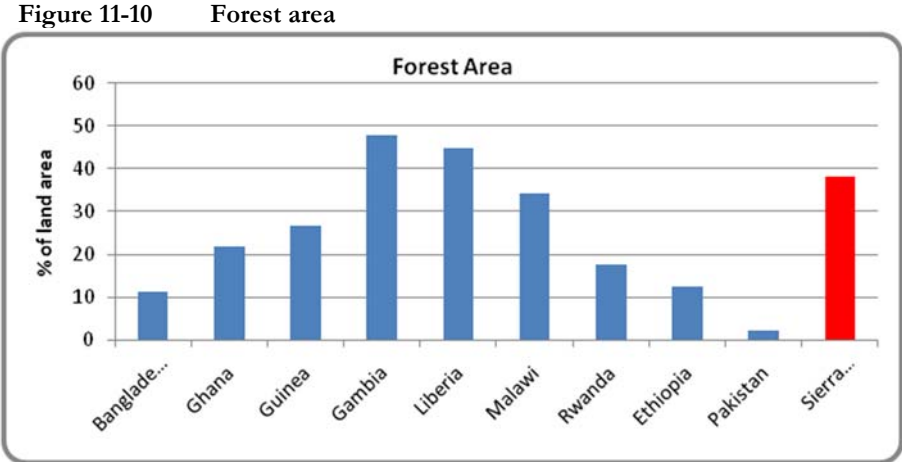
The Mines and Minerals regulations have been completed and passed by parliament while the Precious Minerals Trading Bill is also currently being considered. This Bill will regulate the trading and export of precious minerals as well as the cutting and polishing business in country. The Environmental and Social Regulations of the Mineral Act 2012, is at an advanced stage of being passed. The regulations, once adopted, shall considerably improve on the state’s legal and regulatory regimes to hold mining companies accountable to the highest international environmental standards as well as significantly mitigate the impact of mining activities on the social fabric of mining communities.

The set-up of the Mining Cadastre Administration System to increase transparency and accountability by using software such as GIS to facilitate the management of the concession system has greatly reduced the lack of clarity on mining concessions. All mineral rights since 2010 have been digitally administered and corresponding payment data from the National Revenue Authority including non-tax data have been integrated.

Probably, the most important institutional reform project of the mineral sector is the creation of the National Minerals Agency (NMA). The NMA is responsible for the licensing system and oversight of mining operations, for the collection of geological information and for trading of minerals regulations. Its main goals are to promote investment, guarantee transparency in the awarding of concessions and monitor compliance with existing regulations. A robust and effective NMA strengthens government’s revenue generation and enforcement of laws, policies and regulations capacity in the extractives sector.

11.5 Forest and Wildlife

Sierra Leone is blessed with swaths of lush forests, as shown in Figure 11-10 below.



Source: World Development Indicators 2011

One of the most important reserves in Sierra Leone is the Gola Forest, which is a 71,000-hectare trans-boundary national park that lies in the eastern part of Sierra Leone on the southern border of Sierra Leone and Liberia and is the most important forest reserve in the country. It is part of the Upper Guinea forests, a large expanse of rainforest that once covered coastal West Africa. Now fragmented due to logging and agricultural conversion, it is thought that up to 70 per cent of the original Upper Guinea forest is lost (DEFRA (UK), n.d). The Gola Forest is one of these remaining fragments and is considered a 'biodiversity hotspot' because of its tremendous diversity of plants and animals (DEFRA (UK), n.d). It houses 330 species of birds, of which 18 are rare or threatened, 50 species of mammals, of which ten are primates, more than 600 species of butterflies, and almost 1,000 plant species, of which 770 of these are flowering plants. It is home to forest elephants and endangered pygmy hippos, western chimpanzees, Diana monkeys, and the Western Red Colombus Monkey, among others.

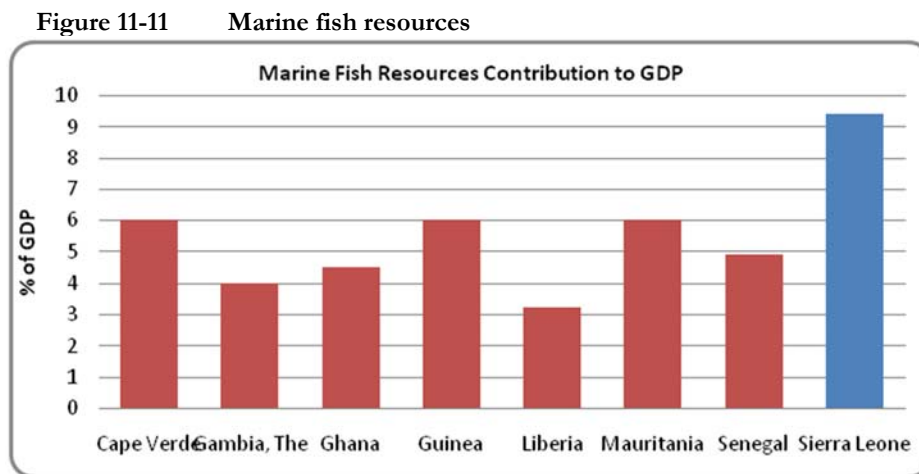
Sierra Leone is climatically a forested country and over sixty percent of its land was originally covered by closed high forest of most evergreen and semi-deciduous types. It is estimated today that the country has lost nearly 70 percent of its forest cover, with less than five percent of the original forest remaining in isolated forest reserves on tops of mountain and hillsides (MAFFS 2013). The lack of cheap and affordable electricity and fuel (kerosene) in the Urban as well as in the rural areas, mean that energy needs have to be met from alternative sources. The most common and frequently utilised energy sources are fuel wood and charcoal and the bulk of these come from the exploitation of preferred species from lowland rain forests, mangrove swamp forests and the *Lophira* savannah in the North of the country. An estimated 85 percent of the Sierra Leonean population is dependent on the use of fuel wood and charcoal for domestic heating and cooking (MAFFS). As we lose the coastal mangrove swamps due to a high demand for wood used in fish smoking by the fishermen and the traders they sell to in bulk, the evaporation of salt, which illustrates wastage, is inevitable. With population pressure and commercialization today, the rate of exploitation has far out stripped the rate of regeneration by natural means. The result is deforestation and an immense threat to biodiversity. However, even with the use of improved electrification we do not expect such traditional means of frying fish using smoke from wood will change any time soon.

It is no surprise to us that the loss of biological resource is one of the most important issues at warrant urgent attention. The government has and still is concerned over the depletion of the natural resources in general and the biological resources in particular. In addressing this problem the Government has established habitats and ecosystems through establishment of parks. Sierra Leone has 295,950 hectares of forest game and national parks and 32,000 hectares of community forest. The concept of community forests is generally designed to create an environment for the active participation of local communities in forest management, protection and utilisation and to empower communities to take charge of their own affairs and accrue benefits from the forest resource through revenue retention or direct use. In addition, some forests have been declared

reserved and as such it is illegal to interfere with them for any kind of economic activity. Plans are underway to introduce community based natural resource management for the wildlife sub-sector for the effective participation of local communities in wildlife schemes.

11.6 Marine Resources

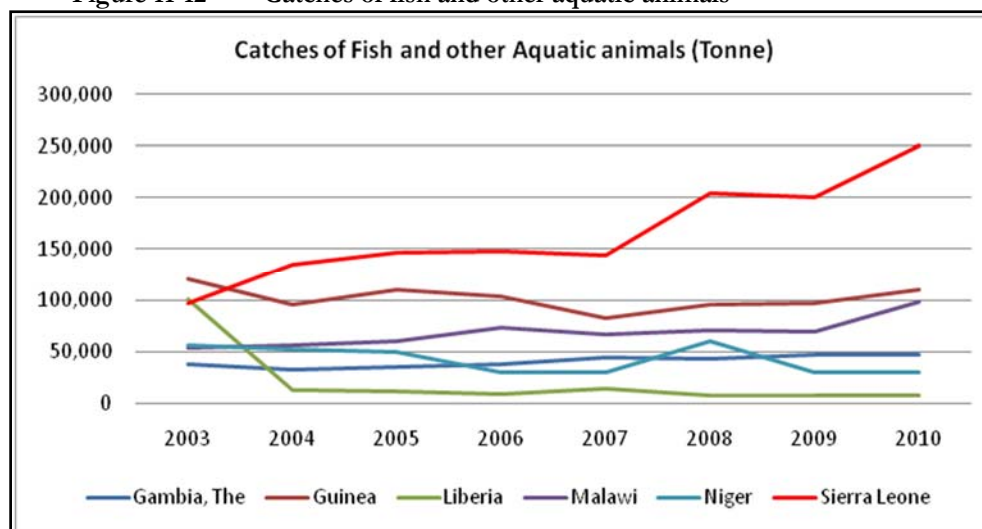
With a 200 mile Exclusive Economic Zone (EEZ) claimed in 2008, the country is rich in fish and aquatic resources, which have the potential to provide jobs, food, and revenues from sales. The fisheries sub sector contributes over 9 percent of GDP according to a World Bank study as shown in Figure 11-11, with Guinea, Cape Verde and Mauritania showing contributions of about 6 percent to GDP.



In the FAO Fishery country profile it is documented that the fishery of Sierra Leone is subdivided into the following sub-sectors: industrial (highly mechanized and capitalized), artisanal (low technology and small scale) and aquaculture and inland (not fully developed). The industrial fishery constitutes the mainstay for revenue generation from fisheries. It is estimated that the industrial fisheries currently employ about 1,000 people and contribute between 15-20 percent of total fish production in the country. Small-scale artisanal fishery is a significant source of employment, rural income and provides fish protein to a vast majority of Sierra Leoneans.

As shown in Figure 11-12 there has been a systematic increase in the catch of fish and other aquatic animals for the period for which data is available. This can indeed contribute significantly towards poverty reduction in Sierra Leone, as there is a heavy presence of artisanal fishermen in the sub-sector.

Figure 11-12 Catches of fish and other aquatic animals



Source: FAO yearbook

It is worth mentioning that the European Union banned fish exports from Sierra Leone due to poor sanitary conditions. So to export fish, Sierra Leone now has to go through a third-party country, which negatively affects export earnings. Cognizant of the negative effect this has on the country's image and especially the reduced earnings, the government of Sierra Leone is taking the necessary steps to improve the sanitary requirements to enable the country to access international markets directly by introducing laboratory testing for fish products while looking to make sure fishing entities establish improved sanitary conditions. In addition, Government plans to enter into a Fishing Partnership Agreement with the European Union for the exploitation of offshore deep-water resources.

The fish and aquatic resources in Sierra Leone are plentiful, but extensive illegal and uncontrolled fishing operations that continue taking place in offshore and inshore waters pose some threat to the existing resources. It is perceived that fishery in Sierra Leone, although not yet overexploited, is currently threatened to decline due to extensive fishing pressure exercised by vessels operating (mostly illegally) with no access restrictions to fish stocks. There is no available data to determine the stock of fisheries resources in the country. Also, the management of fisheries through monitoring, control and surveillance of the industrial and artisanal fishing activities is currently an issue. A comprehensive assessment of the fisheries resources is currently underway with the assistance of foreign partners. To respond to the threats posed especially by industrial fishery, which is essentially an offshore operation, logistical measures are now in place with the assistance from the naval forces to deal with offshore foreign fishing trawlers.

11.7 The Oil and Gas Sector

According to a document entitled Voices of Sierra Leone, “Oil and Gas”, “Recent hydrocarbon discovery by Anadarko in offshore Venus prospect indicate strong likelihood of major oil fields in Sierra Leone.” (SLIEPA). Hydrocarbon exploration blocks on the continental shelf have been delineated and five have been leased. In 2010 Anadarko Petroleum Corp announced that they had discovered oil and gas in their Mercury well, but to date no firm reserve figures have been released. The Venus “discovery” dramatically improves the prospect of the Sierra Leone offshore blocks and all unallocated (open acreage) blocks should be competitively and transparently leased. Once production begins in a few years, revenue from the oil and gas sector could contribute significantly to macroeconomic growth. Sierra Leone is uniquely located to supply markets in the US, Europe and Africa without geographical pinch points, and there is access to multiple oil producers in the Gulf of Guinea and South America. Thus the country is well positioned to benefit from discoveries of domestic hydrocarbon resources. This natural resource presents an opportunity, rather than a constraint to private investments in Sierra Leone.

11.8 Beach Resources

Sierra Leone has a coastline of around 402 km marked with many unspoiled white sand beaches. Most tourists in Sierra Leone are drawn to the country’s pristine beaches, which visitors describe as some of the most beautiful in the world. Sierra Leone’s beaches are divided into seven groups, each with its own special charms, but all offer vast expanses of white sand, clear water and almost no people. These beaches include the Sulima area, which has around 11 km of beach between the Moa and Mano rivers; Turner’s Peninsula, with an amazing 100 km of beaches; Sherbro peninsula, with around 40 km of beaches on the south side of Sherbro Island; Shenge, with 15 km of beaches; Freetown peninsula, with 40km of beaches backed by mountains; Lungi, along the Bullom peninsula, with around 15 km of beaches; and the Scaries estuary, which has around 8 km of beaches (Ministry of Tourism).

In recent times however, there have been signs of degradation on some of these beaches as a result of persistent sand-mining and this is having some serious effects on the coastline and dampening the hopes of tourism revival in the respective affected areas. It has been pointed out that the burgeoning infrastructural projects going on especially in the capital, Freetown which are dependent on the supply of sand are the main causes for this. In strong response to this threat, there has been a ban on sand-mining on all beaches with the exception of John Obey beach along the peninsula.

11.9 Conclusion

Sierra Leone is well endowed with mineral wealth and other natural resources. Based on the evidence, we cannot consider the natural factors as binding constraints, although there are some concerns that have to do with management of these assets, especially in the mineral sector. In

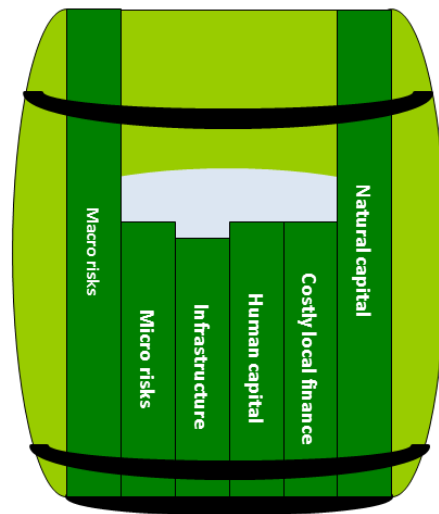
response to these challenges there have been recent efforts to regulate and protect the country's minerals from exploitations.

12 Policy and Institutional Effectiveness as a Syndrome

After reviewing the evidence in all branches of the HRV diagnostic tree, we begin to see some patterns emerging for Sierra Leone. First, it is obvious that Sierra Leone has many development challenges. The decade-long civil war destroyed much physical, human and social capital, which propelled Sierra Leone to the bottom of the international rankings in many sectors. As a result, distinguishing the constraints that are truly binding economic growth from other problems in the economy is difficult.

In their *Mindbook*, Hausmann, Klinger and Wagner use the analogy of a barrel to describe binding constraints (Hausmann et al 2008). Imagining growth as liquid in a barrel and each potential determinant of growth as a vertical stave in a barrel, they say that the volume of liquid in the barrel is limited by the length of the shortest stave (i.e. the binding constraint). Extending this analogy to Sierra Leone, we can say that many staves in the barrel are short, and they are similar in height.

Figure 12-1 Sierra Leone's "Barrel of Growth"



Source: Adapted from Hausmann et al (2008)

This concept of Sierra Leone's economy illustrates two important things. First, it shows us that the determinants of growth examined in this report are complements, rather than substitutes. A surplus of natural capital cannot compensate for a shortage of infrastructure. Second, it shows that if Sierra Leone were to fix one constraint, another factor would appear as the binding constraint quickly. This requires policymakers to remain vigilant of issues in numerous sectors simultaneously.

While the short staves represent the low stock of various inputs to economic growth in Sierra Leone, the flow of these inputs must also be a concern. How quickly are these inputs being improved? Is Sierra Leone's problem simply that there is a low stock of infrastructure and complementary inputs?

Or is the flow of these inputs being impeded by something in the economy? The *Mindbook* describes the issue slightly differently:

“To argue that an economy suffers from a certain greatly constrained factor, we need to understand where that constraint comes from. If markets were perfect, the shortage of a factor would generate incentives to increase its supply. So, why does the constraint not self-correct? ...The analyst needs a hypothesis that rationalizes why the empirical regularity emerges as an equilibrium outcome.”
(Hausmann et al 2008)

This underlying hypothesis is referred to as a “syndrome,” and the identity of the underlying syndrome has serious implications for how policymakers attack the constraints to growth.

Although the low levels of various inputs to growth have been demonstrated abundantly in this constraints analysis, we believe that policy and institutional ineffectiveness represents a syndrome in Sierra Leone that is hindering alleviation of the binding constraints and ultimately growth. This report has identified three constraints as likely binding: power, roads and water and sanitation. If every household in Sierra Leone received electricity, all the roads were paved and everyone had access to clean water and sanitation services, would rapid growth ensue? Perhaps in the short term, but in the long run, policy and institutional ineffectiveness would erode many of those gains, and Sierra Leone would soon be back in a similar position. Nor does this mean that policy reforms alone would lead to a growth acceleration in Sierra Leone. Rather, an infusion of capital is necessary to improve the stock of infrastructure, while improved policy and institutional effectiveness is needed to sustain the flow of infrastructure improvements.

Several chapters in this report discuss how policy and institutional effectiveness affects the binding constraints, as well as creates micro risks for businesses. But what are the implications of this syndrome? Hausmann et al have proposed a basic list of common syndromes, such as the Over-Borrowing State, the Over-Taxing State, the Under-Investing State, the Under-Protecting State, Disruptions to the Export Sector, and Barriers to Entry. How do the constraints and the syndrome identified in Sierra Leone match to this framework? Figure 12-2 on the next page shows a list of common symptoms of constraints identified by the *Mindbook* with red circles showing symptoms that have manifested themselves in Sierra Leone. A high spread on loans exists in Sierra Leone, driving up the cost of finance. Sierra Leone has low stocks of infrastructure compared to other countries partially due to the war, but also due to policy and institutional issues. Growth in Sierra Leone is elastic to changes in infrastructure. Tax and labour market risks exist in Sierra Leone, contributing to a large informal sector. High marginal corporate tax rates and corruption also lead to micro risks.

Pritchett (2008) takes this process one step further and matches the symptoms to the list of common syndromes. As can be seen in Figure 12-3, Sierra Leone's constraints seem to correspond best with the Under-Investing State syndrome.

Table 12-2 Effects of Common Syndromes

Binding Finance		Binding social returns					
Low aggregate Savings	Bad finance	Lack of complementary factors		Low appropriability		Coordination	
		Human Capital	Infrastructure & public goods (geography ?)	Government failure		Market fail.	
				Ex ante	Ex post		
				Tax	Low property rights, crime & corruption	Low R&D Low Self discovery	
High lending interest rate		Low lending interest rate					
Low net cash flow from banks		High net cash flow from banks (dC/C - i)					
Investment elastic to interest rate		Lack of investment response to interest rate change					
Access to external finance (EMBI, Default risk, CAD, Unsustainable debt)			Low infrastructure vrt comparable countries	High static markups & low entry; in industries with entry costs	Monopoly power, high markups. Regulated entry	Expropriation	Low sophistication (EXPY) and few new industries
Short loan duration, credit rationing		Inward migration high skills	Shocks to infrastructure (hurricane, war)	Political risk, social risk		Social unrest	Growth responds to new indus
High deposit interest rate	High spread	High returns to education		Tax policy risk	High taxes: Top marginal tax rate, corporate tax, VAT.	Open conflict	Few products "nearby" to move (openforest low)
Negative relation between growth and current account.	If it's high risk, then low profits	Procyclical mincerian returns	Growth elastic to infrastruct. Change	Labor market risks	Restrictive labor regulations	Corruption (illegal tax rate) (Kaufman)	
	High operating expens /assets	Low tertiary for level of development	Congestion	History of expropriation	Inflation tax	High protection costs (ICA)	High correlation of growth with TOT
	Monopoly powers: high (P/E) ratio of banks	Returns decrease as education grows	Port quality. High losses in transport (ICA)	High expectation of losing future profits	Cost of doing business		High returns to coordination activities

Source: Hausmann et al (2008)

Table 12-3 Common syndromes and their symptoms

Syndrome	Low growth and investment							
	Binding Finance		Binding social returns					
	Low aggregate Savings	Bad finance	Lack of complementary factors		Low appropriability			Coordination Market fail.
					Government failure			
			Human Capital	Infrastructure & public goods (geography ?)	Ex ante risks	Tax	Low property rights, crime & corruption	Low R&D Low Self discovery
•The over-borrowing state	xx	x			x			
•The over-taxing state				x	x		xx	
•The under-investing state			xx		x		x	
•The under-protecting state								xx
•Growth collapse							x	x
•The under-educated country			xx					

Source: Pritchett (2008)

Why is underinvestment in infrastructure the primary outcome? The low stock of infrastructure is partially due to the war, but policy and institutional ineffectiveness has hindered efforts to repair and expand these infrastructure assets. As discussed in previous chapters, Pushak and Foster have argued that underpricing, collection inefficiencies and lack of maintenance by Sierra Leone's utilities and roads authority have prevented efficient operation and improvements to infrastructure. Without strengthening the policy and institutional framework surrounding these sectors, Sierra Leone's infrastructure deficiency is likely to persist.

13 Summary and Conclusions

The analysis carried out in this report seeks to present the evidence available from various data sources, to guide the diagnostic process. The differential diagnosis examines the data along the lines of the four tests discussed in the Methodology Chapter. The following conclusions may be drawn from these analyses:

- Sierra Leone has maintained a modest growth trajectory over the past decade averaging 5 percent in GDP growth over the period; however, the gradient of this trajectory needs to be dramatically increased to achieve average annual GDP growth rates in excess of 13 percent to reach the targeted middle income status envisioned under the Agenda for Prosperity.
- Private investments, which should propel growth, have been considerably low due to a number of factors. This aspect of the economy, particularly domestic private investments, needs to significantly increase in order to ensure broad-based economic growth and development in the country.
- Private returns to investments are generally low and vulnerable to a number of microeconomic risks. Large companies have ways of insulating themselves against such risks.
- Low social returns to private investments, particularly domestic private enterprise, are made worse by a weak infrastructure service base in power and roads.
- The weak infrastructure in water supply and its accompanying problems of water-borne diseases poses high shadow price in the economy, as indicated by high out of pocket expenses to households and significantly high number of employee days lost by firms.
- Although there is some evidence of an emerging skills gap, human capital does not presently pose a serious constraint to private investments and growth; that notwithstanding, there is a high return on females' education and low participation rates for women in the labour force. This seems to suggest that women may not have had historically fair and equal chances for education and formal sector employment.

Based on the overall evidence from available data, the most binding constraints to broad-based private investments and economic activity identified in this report are:

1. The lack of adequate, reliable and affordable access to electricity supply to support the emergence and growth of a wide range of economic activities.
2. The poor conditions of secondary and feeder road networks, which provide access to highly productive regions of the country with even higher potentials to drive growth.

3. The lack of access to clean water and sanitation services, leading to significantly high incidences of water-borne diseases, which have implications for labour productivity and out-of-pocket expenses. While water is not a problem in terms of its natural availability, distribution and other problems have led to high financial cost of accessing safe water or long travel distances and times to access them.

Underlying each of these constraints is a syndrome that stretches throughout the economy:

- Policy and institutional ineffectiveness, which hinder any correction of the binding constraints, create microeconomic risks that contribute to a large informal sector, and constrain investment throughout the economy.

There are other constraints to economic activity as diagnosed herein; however, the preponderance of evidence argues in favour of these three constraints and the underlying syndrome. Nationwide consultations with stakeholders in Sierra Leone, conducted in July/August 2013 with over 860 participants from across Sierra Leone, have reinforced these findings (see Annex I). The following matrix summarises the evidence discussed in the analysis, and highlights the respective conclusions made therein.

Indicator	Shadow Price test	Growth test	'Circumvention' test	'Non-reliance' test	Other evidence	Likely binding, possibly binding, or not binding?
Finance						
International Finance	Government does not borrow on international markets, although most businesses likely do not either	Literature shows mixed impact of FDI and foreign aid on growth. However given that international finance is not in short supply, the growth tests is in a sense redundant	Foreign firms can access international finance with no evidence of local firms doing so	Large & foreign firms thrive because they can access foreign capital	Relatively high levels of FDI, foreign aid and remittances	Not binding
Local Finance	High nominal interest rates, but low real interest rates now; they may return to historical averages	The interest rates-investments relationship suggests that the growth dividend is high	High level of self-financing	Large & foreign firms thrive because they can self-finance or access foreign capital. Domestic firms remain small and informal	Low savings rate, some evidence of government borrowing crowding out lending to the private sector	Possibly binding
Natural Capital	The geography makes international trade transport costs slightly lower than many neighbors with similar distance to markets	Because shadow price is low, there likely is not a growth dividend	No evidence of circumvention	Mineral resource hippos	Coastal location with abundant water and mineral resources; management of resources, rather than limited resources could be constraint	Not binding

Human Capital						
Education	Low returns to education, except for girls and tertiary education	Employment rates increase with level of education	Some evidence of importing foreign workers with specialized skills; even though the supply of tertiary graduates is not low	Financial services (hippo) thriving, since they require lower specialized skills compared to other sectors.	High rates of emigration, although net migration is positive	Not binding
Health	High levels of stunting and expenditures on health; health factors in general pose a high shadow price to the economy; however burden of disease (DALY) is not abnormally high	Reduction in certain health indicators (malnourishment, cases of disease, etc.) does not appear to be correlated with investment or growth in the short term	Many people consult non-medical sources when sick, Firms do not appear to be circumventing health issues	Inconclusive as industries that are intensive in healthy persons (<i>e.g. construction</i>) may thrive because unemployment levels are high even where general health levels may be low	Long-term growth and productivity levels could be reduced due to high infant mortality levels and high stunting levels in children	Possibly binding
Infrastructure						
Transport (Roads)	Relatively high transport costs for unpaved roads, which constitute >90% of network; high import bills on staple food (rice) which has limited distribution due to poor roads	Increased domestic and cross border trade arising from investments in road stocks (evidenced by higher trade and customs revenues), rehabilitation of rural roads led to decrease in the price of rice	Large foreign firms that are intensive in road use construct and maintain private roads/rails. Population resorts to use of motor bikes for inaccessible roads	Local firms are concentrated in urban areas with good roads, although there could be many reasons for this	Paved roads constitute 8% of total road network, although many gravel roads are in good shape; ~20% of secondary and feeder roads are inaccessible for ~17% of the year	Likely binding

Transport (Port)	Bulk handling charges are relatively low in Sierra Leone	Little evidence suggesting correlation between port quality and growth	Mining companies operate private ports	Majority of firms do not export, although it likely is due to quality standards (e.g. fish), Sierra Leone relies heavily on imports	Port waiting times in line with regional averages; Recent concession of harbour operations introduced some efficiency	Not binding
Power	Households spend about \$189/year on inferior fuels, with costs amounting to 1.26% of GDP more than if they had some grid access	Outages to households and businesses that are connected but with no generator backup cost the economy 0.8% GDP each year	81.8% of firms own or share a generator; estimated MW from generators larger than grid	Large companies survive because they are large enough to produce their own power; companies could shut down due to power failures	Private and non-grid power generation is almost triple that produced by the grid	Likely binding
Water and Sanitation	High shadow price; it costs about 83 minutes a day to collect water for all uses of water and households spend on average \$66.22 per year (\$155.32 PPP) to collect water. High child mortality rates are associated with poor water and sanitation	The annual cost of water for households (\$44.2m) as a percent of total exports in 2011 is 16%. Improvements in water supply are correlated with decreases in child mortality	43% of population draws water from unprotected wells or surface sources. A high percentage (over 75%) of the population does not have access to sanitation.	Inconclusive as industries that are intensive in healthy persons (<i>e.g. construction</i>) may thrive because unemployment levels are high even where general health levels may be low	Contributes significantly to health outcomes through water-borne and water-related disease	Likely binding
ICT	Mobile communications growing at similar rate to neighbours	Most direct effect of investments in ICT is in area of employment and Government revenues	People have multiple phones/SIM cards to account for varying levels of coverage	Difficult to find firms that do not use some ICT, especially mobile phones	Rapid growth of the mobile phone industry and continued investment in the sector	Not binding

Micro Risks						
Land Tenure/Property Rights	Registration of land in Freetown takes 76 days, costs 12.4% of value (but only 5% of total land), paramount chiefs control land in the provinces, although actual land prices are low where land markets exist (which is an extremely limited area)	Literature shows mixed evidence of effect of secure property rights on investment and productivity	Proxy buyers of land for foreigners, banks rely on relationships over collateral; investors attempt to access land through the state because of poorly functioning land markets and customary land allocation mechanisms	Non-agricultural businesses (camels) thriving, although so are mining companies (hippos), although mining companies primarily obtain access to land through state/circumvention	Land is occasionally still used as collateral in Western Area	Possibly binding
Taxes	Tax revenue as % of GDP is low, high taxes compared to comparators	Investment and growth do not appear to be correlated with taxes	Large informal sector, although that could be caused by a variety of factors	Large firms can afford taxes or cut special tax deals	Low government revenue/GDP ratios, indicating constraints on Public Investments and service delivery	Possibly binding
Corruption	Only 14% of firms report giving gifts to get things done, but perception of corruption is still high	Corruption scores improving at the same time as economic growth	Firms stay small and informal to avoid 'attracting' attention	Large firms can afford to pay to influence govt officials	Perception of corruption remains high	Not binding
Regulatory Environment	15% of firms spend more than 5 hours/week dealing with bureaucracy	n/a	Large informal sector	Data inconclusive		Not binding
Policy and institutional effectiveness	Leads to low government revenue, weak management of resources and low investment in public infrastructure	Informal sector businesses tend to be less productive than formal sector businesses	Large informal sector, underreporting of employees and income	Informal sector is 45% of economy	Contributes to other constraints	Underlying syndrome

Macro risks	Inflation high, govt revenue declining despite GDP growth, spending near comparators	Inflation does not appear to be correlated with growth	Dollar-denominated contracts	Export earnings of large foreign firms not highly vulnerable to domestic macro risks		Not binding
Failures in Innovation	Cheaper cost of exports and imports; comparatively high income level of exports with GDP per capita showing Sierra Leone exporting products richer than they are and high export concentration	Export as a % of GDP is favourable (25%).	High import diversification	Decreasing export diversification		Not binding

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Annex I:

Consultation Summary Presentation



Consultations Report on Preliminary Constraints Analysis

09/09/2013

Overview

- Methodology
- National Ranking Outcome
- Qualitative Findings
 - Top 3 Constraints
 - Other Constraints
 - Demographics & Regional Differences
- A quick glance at the report structure

Methodology

- Analysis objectives:
 1. To understand how the preliminary constraints are observed or affect the different stakeholders
 2. To get opinions on what expected outcomes are if any of the constraints are relaxed
 3. To solicit perceptions on relative 'importance' of each of the constraints from a ranking perspective

Note: To some extent, it was difficult to get 'solid' responses from stakeholders across the board

Methodology

- Stakeholder Groups defined in Consultations Strategy
- Nationwide geographical coverage
- Consultation format
 - Plenary sessions: presentation of preliminary CA report results
 - General Q&A on preliminary finding
 - Focus Groups (15 per group): “5 Questions”

Weighted Average Group Size	35
<i>Provincial Meetings</i>	40
<i>Western Area Meetings</i>	25
No. of Provincial Districts	12
Western Area Groups	6

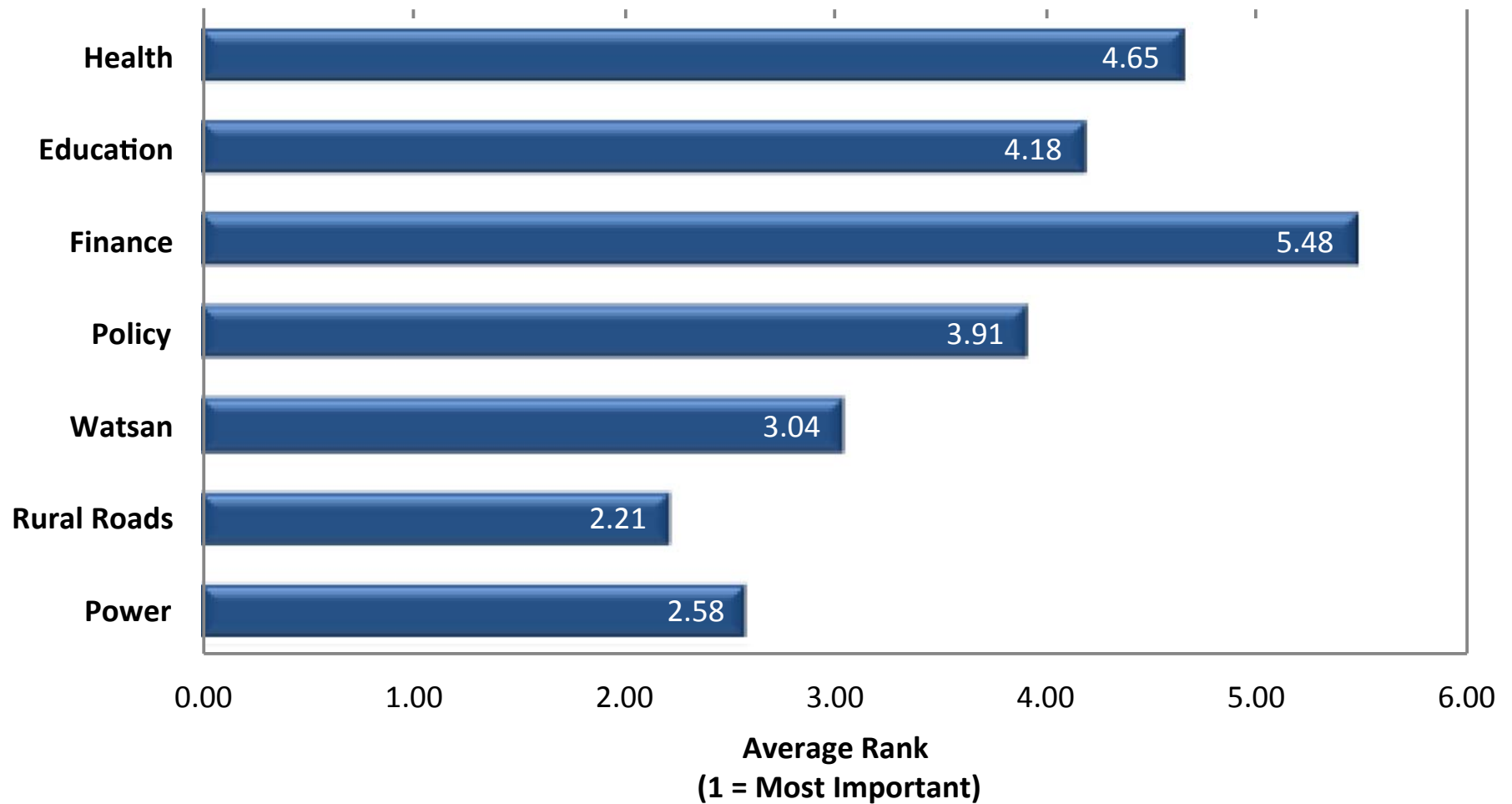
Western Area Groups:
Political Parties; Women; Youth;
NGOs/CBOs; Chamber of Commerce &
Bankers; Government MDAs

$$R_c = \left(\sum_{i=1}^n (r_{ci}) \right) / n$$
$$1 \leq r \leq 7$$

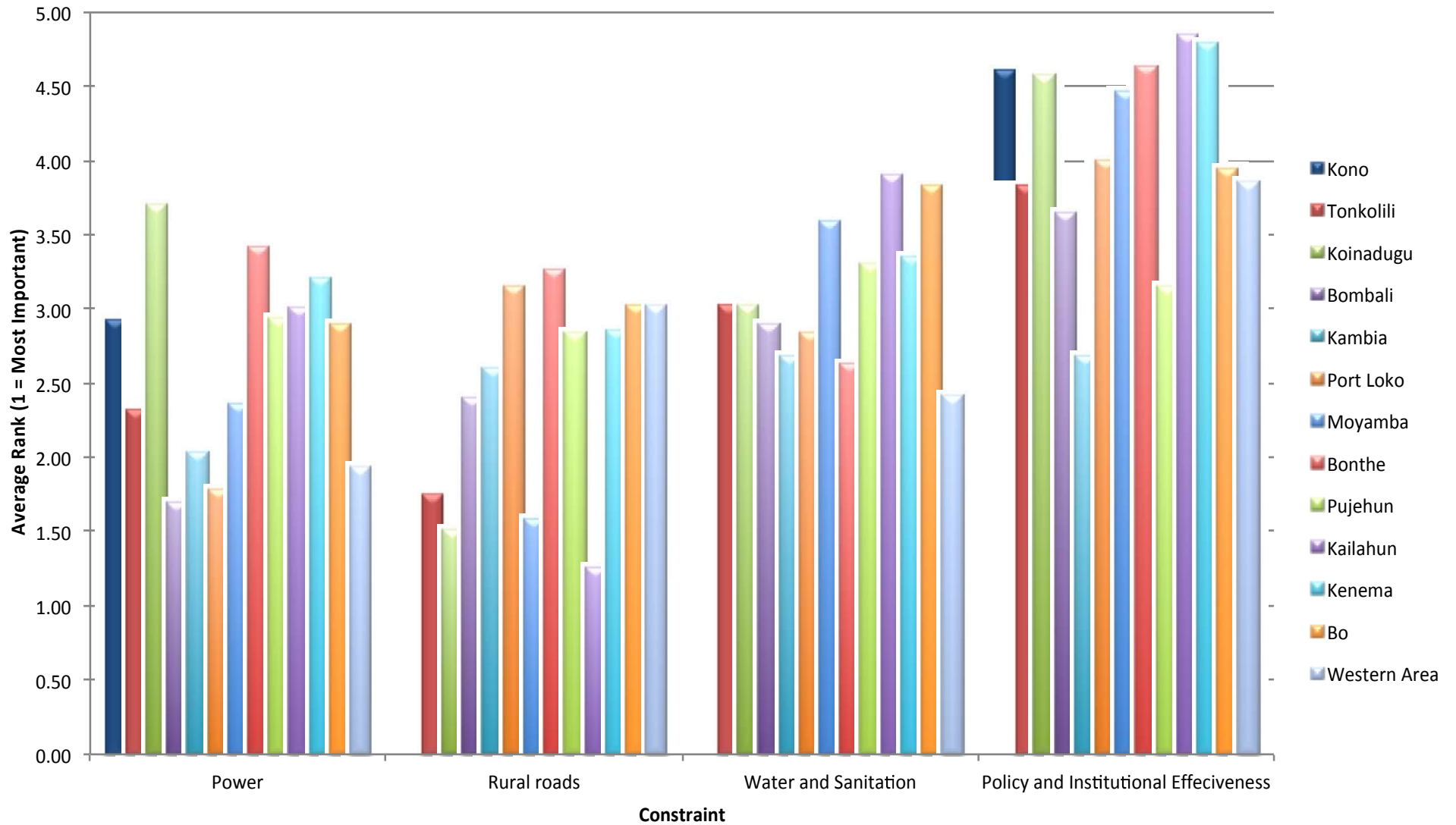
National Ranking Outcome

1. Rural Roads (2.21)
2. Power (2.58)
3. Water and Sanitation (3.04)
4. Policy and Institutional Effectiveness (3.91)
5. Education (4.18)
6. Health (4.65)
7. Cost of Domestic Finance (5.48)

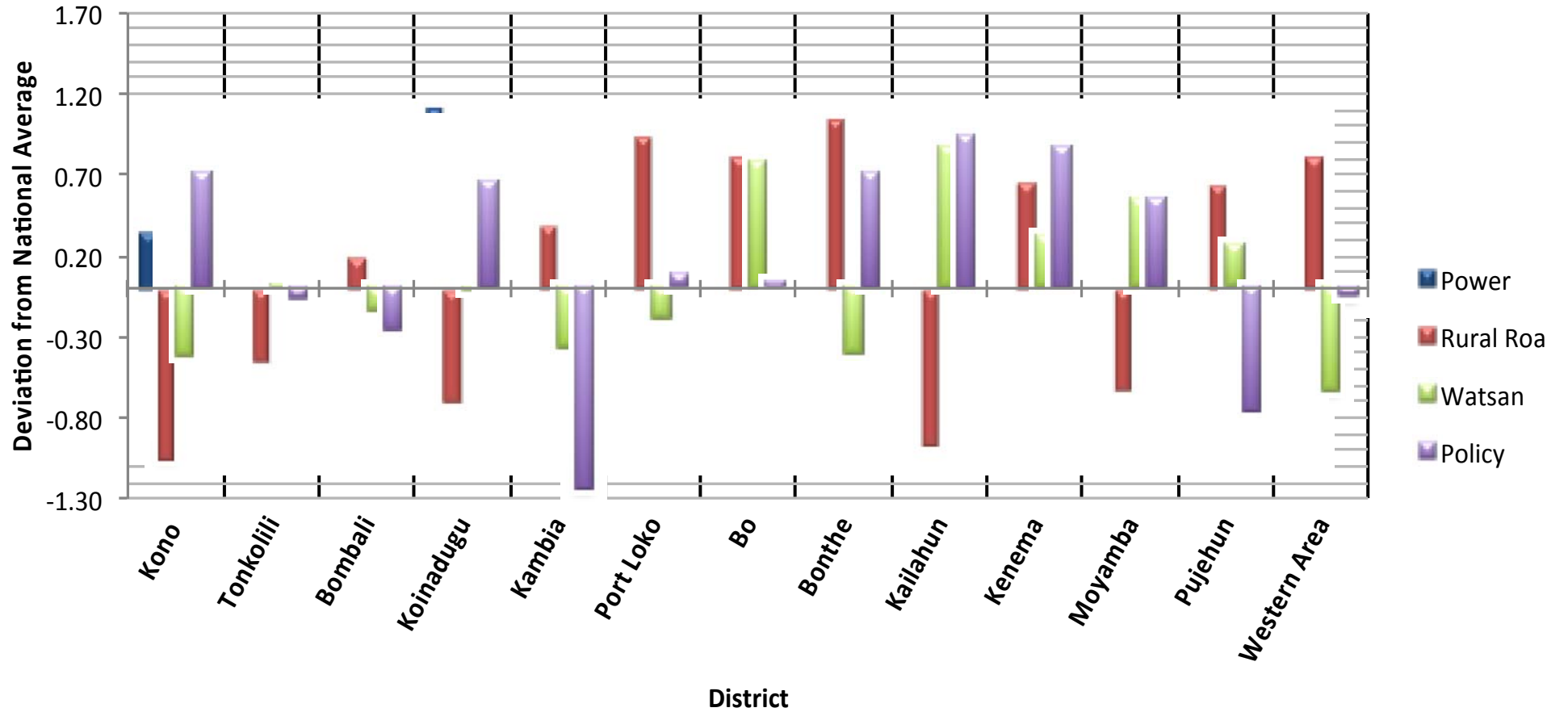
Average National Rank of Constraints



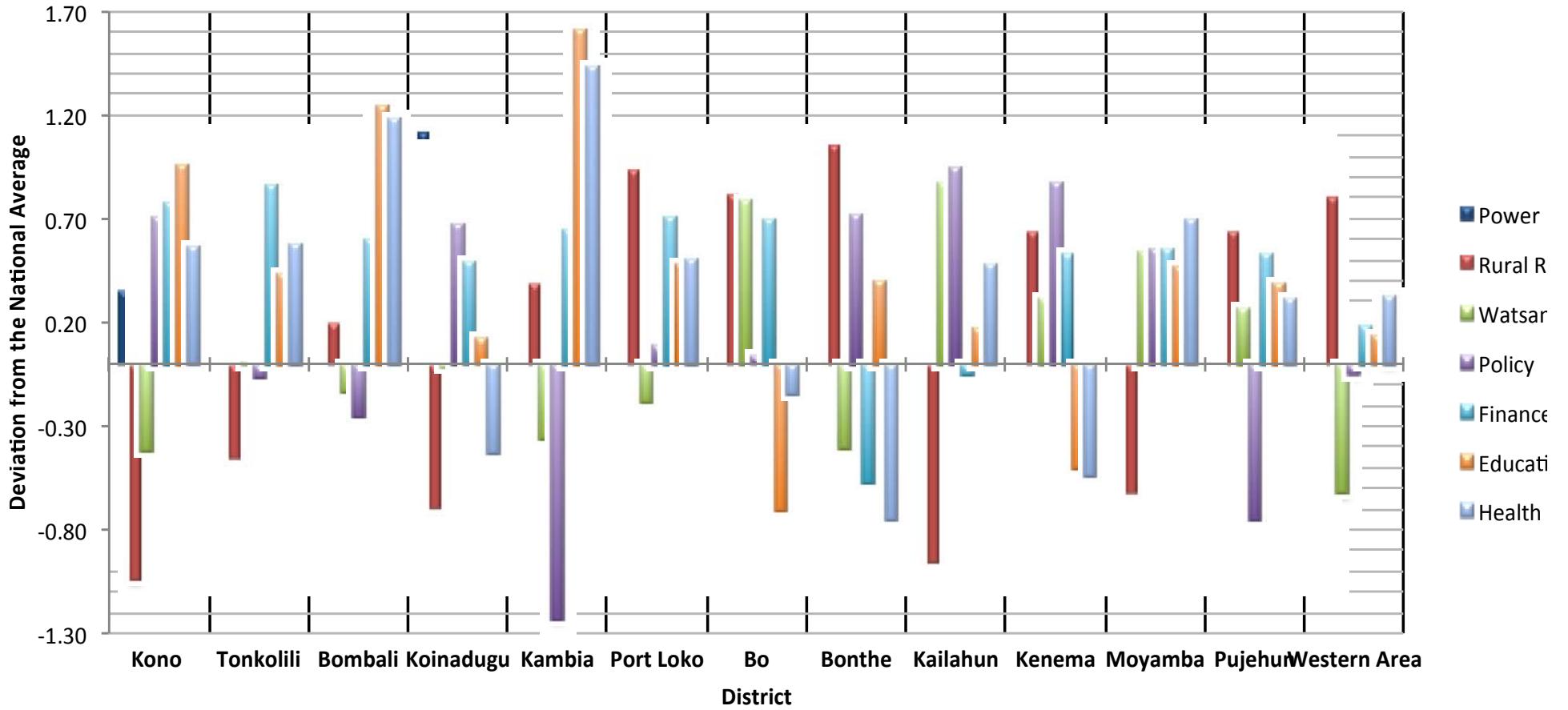
Average Rankings Per District, by Constraint



Deviation from the National Average



District Deviation from the National Average



Top Three Constraints: Cross-Cutting Effects

- Scarcity of basic goods and services.
- Increased cost of the goods that are available (with costly substitution and negative income effects on both households and businesses).
- Lower worker productivity.
- Increased rate of violent crimes, especially rape.
- The reasons given that the three primary constraints lead to these outcomes are similar across all districts.

#1: Rural Roads

General Effects

- High **transportation costs** lead to a limited market access, reducing profits and disposable incomes.
- **Security.** Limited access to health facilities, especially problematic in emergency cases.

Examples

- Broken down trucks loaded with perishable goods on side of the road (e.g. in Kailahun)
- Shenge Jetty project in Moyamba never became operational

#2: Power

General Effects

- **Costliness of electricity** limits productivity and food preservation.
- **Education.** Reduction in learning outcomes and security for girls.

Examples

- Contribution to high operating costs (as much as 30%)
- Firms must stop production, sometimes for days (e.g. BENNiMiX in Bo)

#3 Watsan

General Effects

Health. Water borne diseases reduce life expectancy and worker productivity.

High household and business cost.

- Costliness of bottled water.
- Physical burden of fetching water
- Risk of becoming victims of crimes (especially rape).
- High opportunity cost for women and girls spending valuable time fetching water.

Example

Kailahun—When fetching water, women are sometimes raped or prostitute themselves to truck drivers for being given a lift in return

#4 Policy

General Effects

- ***Policy implementation and delivery.*** Lack of monitoring, maintenance, and enforcement.
- ***Justice.***
 - Corruption and patronage
 - Lawlessness
 - Tension between customary, traditional law and positive, constitutional law. Negative effects on women.

Examples

- ‘Free healthcare policy’ is a farce
- Chieftaincy Act of 2009 and Constitution are gender biased—women are still often allocated the smallest and least fertile plots of land by Paramount Chiefs
- Corruption raises the cost for firms to access funds
- Poor coordination between government agencies (SLWACO, NPA)

Remaining Constraints: General Observations

- Relative *unimportance* of ‘Cost of Domestic Finance’ constraint.
- ‘Education’ often stressed in discussions as being of great importance; took up more room in discussions than ‘Health’ per se.

Demographic and Regional Differences

- Women tended to rank 'Health' higher than men did.
- Youths consistently ranked 'Policy and Institutional Effectiveness' higher
- Western Area placed much higher emphasis on the lack of power

(Note caveats though ...)

The Report Structure

- Background Information
- Analysis Structure
 - By District and Other Groups in Western Areas
- Analysis Areas:
 - How the Constraints are experienced
 - Gender and Other Dimensions
 - Expected Outcome of Relaxing Constraint
 - Ranking of Constraint Severity
 - Gender and other dimensions