Investing the Mineral Wealth in Development Assets: Ghana, Liberia and Sierra Leone

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Abstract. *Promoting sustainable development calls for investing rents from exhaustible mineral resources into human, physical and social capital, so as to protect the wealth of countries and economic opportunities of their citizens. This has happened to be difficult in the well-governed Ghana; and might prove to be extremely challenging in post-conflict countries such as Liberia and Sierra Leone, where preference for the present is high and institutions to collect rents and convert them into effective investments weak. The paper reviews the countries' degrees of preparedness to confront the various challenges associated with ongoing mineral booms, and tries to identify country-specific policy areas of particular relevance and potential impact for sustainable development.*

I. OVERVIEW

Introduction

1. **In Ghana's footsteps, Liberia and Sierra Leone are likely to experience ample mineral resource[1] booms in the very next years.** In Ghana, growth in gold production combined with surging world prices led to a massive increase in gold export receipts, from US$0.7 billion in 2000 to US$4.7 billion in 2011. Since late 2010, Ghana has also become an oil producer, and exported US$2.8 billion worth of crude oil (24 million barrels) in 2011. The opening of new mines and the construction of a pipeline to exploit petroleum gas should bring up these numbers to higher levels before 2015. Beyond 2015, Ghana anticipates to operate new petroleum fields, in which significant discoveries were made.

2. **In both Sierra Leone and Liberia, the exploitation of large iron ore mines will commence in 2012, leading to a surge in mineral exports.** In Sierra Leone, the exploitation by African Minerals Ltd. and London Mining of two mines could generate export receipts of about US$4.1 billion by 2015. In 2010 in comparison, Sierra Leone exported US$360 million worth of goods and services. In Liberia, the exploitation of several iron ore mines started in 2011 by Arcelor Mittal, combined with the opening of two other mines by China Union and BHP Billiton in 2014 and 2015 respectively, could generate export receipts around US$2.0 billion in 2015. In 2010, Liberia exported US$250 million worth of goods and services. Beyond 2015, the likelihood that Sierra Leone and Liberia will be able to exploit oil in commercial quantities is also high, as exploration is ongoing in both countries, and commerciality was already declared in Sierra Leone. According to a recent geological assessment,[2] the West African

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[1] Mineral resources are defined here as concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. In Ghana, Liberia and Sierra Leone, this definition applies, among others to diamonds, gold, iron ore, oil and gas.

[2] US Geological Survey (2011), Fact Sheet 2011-3034, March, US Department of Interior, Washington D.C.

Coastal province, comprised of Liberia, Sierra Leone and Guinea, has a mean estimated 3.2 billion barrels of oil and 23.6 trillion billion cubic feet of gas.

3. **Emerging from conflicts, mineral activities in Liberia and Sierra Leone are considered absolutely central to any medium term poverty reduction strategy.** As civil conflicts ended in Liberia (2003) and Sierra Leone (2002), both countries made huge efforts to re-gain political and macroeconomic stability. In both countries, peaceful elections were held regularly and substantial debt relief was granted. Thus, Liberia and Sierra Leone were both able to enjoy positive per capita GDP growth rates since 2005, benefiting from a catch up effect and the return of some human and physical capital. But return to some form of normalcy – including for foreign assistance, after post conflict grants are being exhausted - will certainly not suffice to trigger the break out from poverty and vulnerability citizens expect,[3] unless the huge mineral resources are harnessed for it. Measured at current prices, Liberia's and Sierra Leone's iron ore reserves are respectively worth about 75 times and 38 times their GDP in 2011. Thus, in all likelihood, the dependence of Liberia and Sierra Leone to mineral resources will significantly increase in the foreseeable future.

4. **In Ghana, new mineral founds are relatively less important, but have significant bearings on macroeconomic stability and prospects for diversification.** Following the revision of its national accounts in 2010, Ghana accessed to the lower middle income country status (with a GNI per capita at US$1,250 in 2010). While still primarily a natural resource based economy (gold, oil, cocoa, timber), the country is engaged into a transformative process, aimed at developing new industrial sectors and modernizing its agriculture through large investments. As such, the country is particularly keen to insulate the economy from induced mineral commodity price volatility (trough the implementation of a number of stabilization mechanisms), as well as from real exchange rate appreciation, through productivity gains in tradable sectors.

5. **The mineral booms will generate additional revenues, but put the onus on authorities to convert resource rents into effective investments to sustain development.** New mineral activities will generate revenues for locals, directly through job creation and profits retained in the country, and indirectly through transfers to Governments. But these additional revenues will come from depleting non renewable mineral resources, which can be conceived as an action that consumes - and thus reduces – the total wealth of countries. Indeed, wealth economics literature points to the need to include mineral depletion, among others (see Box 1), for proper accounting of the wealth of nations, something traditional national accounting does not do.[4] In turn, the non consideration of mineral depletion could wrongly portray countries' development trends and lose sight on necessary offsetting measures, all aimed at replacing rents generated from the depletion of resources by another capital (physical, human, social), through effective investments. In Sub-Saharan Africa as a whole, adjusted net savings have been on a downward trend since 1995, and have turned negative since 2004. As

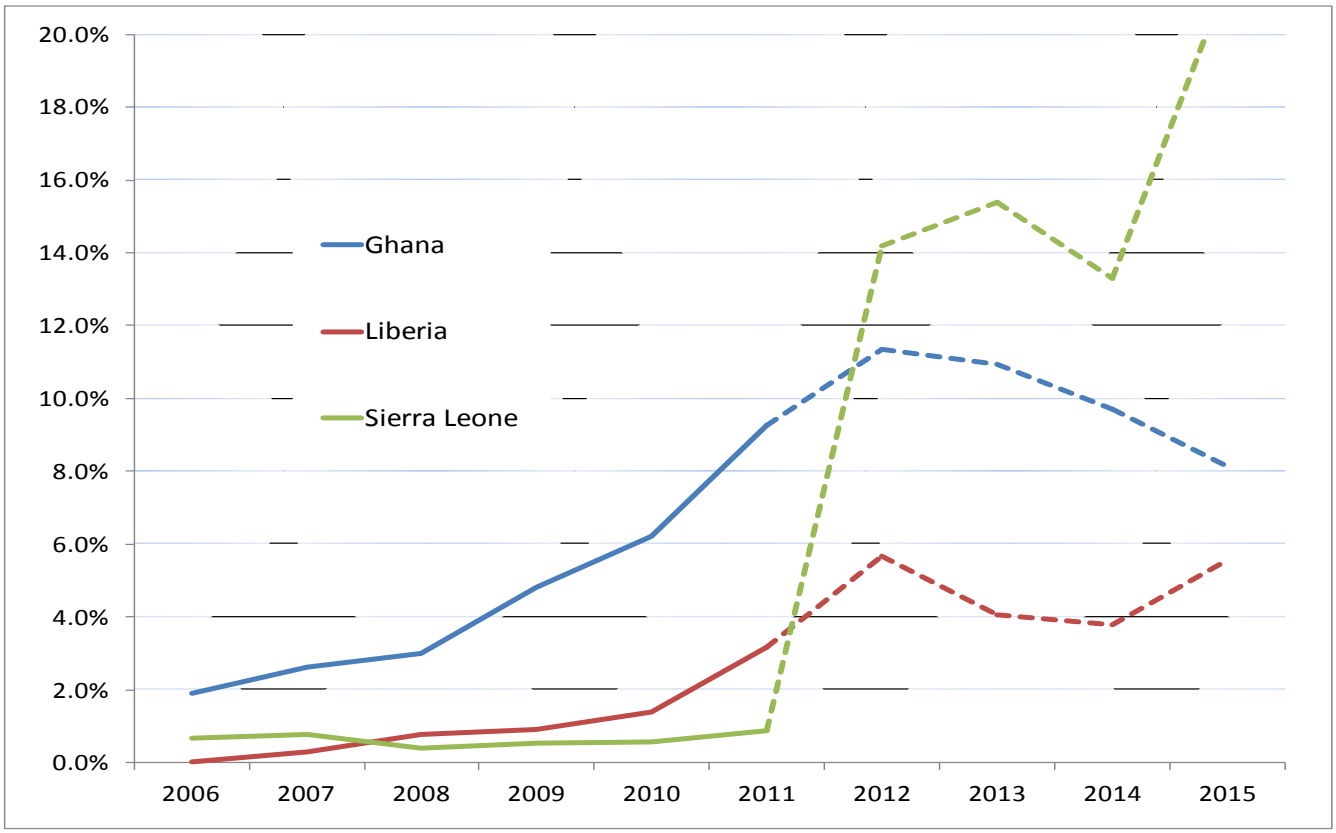
[3] In Liberia, the proportion of people living with less than US$1.25 a day is estimated at 83 percent in 2008; and at 45 percent in Sierra Leone, down from 50 percent in 2005. The estimated evolution of poverty in Sierra Leone suggests that a large proportion of the population is clustered around the poverty line, thus highly vulnerable.

[4] In February 2012, the UN Statistical Commission approved, as an international standard, the System of Environmental and Economic Accounting (SEEA), as satellite accounts to the System of National Accounts (SNA), and the SEEA includes the measure of depletion used in this paper. The three countries of interest in this paper are not yet producing such measures, as still struggling with the production of traditional national accounts. In 2010, Ghana revised upwards its GDP estimate for the year 2006 by 60 percent. Liberia's official national accounts are considered by most observers, including the Government, as severely underestimated and new accounts should be validated after the conduction of a new household living standards survey. Sierra Leone is currently re-basing its national accounts, and preliminary estimates suggest that official GDP numbers are underestimated by about a third.

liquidating its capital to sustain consumption, the region will eventually leave its citizen poorer and with less capacity to generate income in the years to come unless these trends are being reverted rapidly.

Figure 1: Mineral depletion (% of GDP) in Ghana, Liberia and Sierra Leone

Estimates and Central Projections, 2006-2015



Source: World Bank staff calculation.

6. **Mineral depletion in Liberia and Sierra Leone is likely to be significant over the period 2012-15, but its magnitude remains very uncertain.** In Ghana, mineral depletion rose from 1.9 percent of GDP in 2006 to 9.2 percent in 2011. Cumulatively, the equivalent of US$8.6 billion worth of mineral rents was extracted in these six years (see Table A.1 in Annex). In Liberia, from 1.4 percent in 2010, mineral depletion could rise to an average 4.7 percent of GDP over the period 2012-15 as the three iron mines become fully operational. In Sierra Leone, the acceleration in mineral depletion would be much more pronounced, from 0.6 percent of GDP in 2011 to 14 percent in 2012, and possibly 21.5 percent in 2015 as the iron ore mines enter in their second phase of development. The uncertainty surrounding these prospective numbers is undoubtedly extremely high, as depending on highly volatile commodity prices, which impact rents, the volume of operations and the pace of exploration. Per our calculations, rents from iron ore in Liberia (Sierra Leone) would become negative from 2014 should price drop 20 (50) percent below current projections levels (see see Annex, Table A.4). Conversely, actual prices 20 percent above current forecasts would generate rents 143 and 41 percent higher respectively in Liberia and Sierra Leone between 2012 and 2015. Between 2000 and 2011, the standard deviation of international iron ore prices (in US$ terms) was equal to 67 percent of its average – and prices. So countries will not only need to be prepared to absorb large shocks, but also manage the

uncertainty related to it, with strong implications for macroeconomic policy and the management of citizens' expectations.

7. **In Ghana, the depletion of mineral resource between 2006 and 2011 was not met with equivalent investments.** With quicker mineral depletion, Ghana's economic growth accelerated (to reach a peak of 14 percent in 2011, up from 6 percent in 2006), as did national savings and investments, though not fast enough to replace the depleted mineral capital. While gross national savings, measuring the nation's capacity to invest, increased from 15.6 percent of Gross National Income (GNI) to 17.9 percent between 2006 and 2011, adjusted net savings decreased from 7.7 to 2.0 percent of GNI over the same period of time. Thus, in order to maintain investment at higher levels, Ghana decided to significantly increase its external borrowing during the period 2012-15.[5] Such as decision brings additional challenges in terms of debt sustainability, i.e. sophisticated debt management and the need to ensure high economic rates of returns for investment projects.

Box 1 – Wealth Economics and Mineral Depletion

Gross National Savings (GNS) measure the national capacity to finance domestic investment. It is computed at the sum of Gross National Income plus net transfers from abroad (Gross National Disposable Income, GNDI), minus consumption (CONS, public and private). Total domestic investment is financed by the sum of gross national savings and foreign savings.

$$GNS = GNDI - CONS$$

Net National Savings (NNS) subtracts from Gross National Savings the consumption of fixed capital (CFC), to account for the fact that past domestic investments lose value over time (attrition, obsolescence). To maintain wealth unchanged, new investments need to be made every year to offset attrition and obsolescence.

$$NNS = GNS – CFC$$

Adjusted Net Savings (ANS) accounts for several other factors: It adds to NNS education expenditures (EDU), not considered in national accounting as investment (as almost entirely taking the form of teachers' salaries), even if it can be considered as an investment to build human capital. It subtracts to NNS the economic cost of environmental degradation (ENV), as well as the amount of natural resource depletion (NRD), including mineral depletion.

$$ANS = NNS + EDU – ENV – NRD$$

Quantitative methodologies have been established to compute and compare across countries the economic costs of environmental pollution, as well as the value of natural capital depleted.[6] Mineral depletion (MD), on which this paper focuses, is computed as the present value of the future rents, divided by the number of years of extraction, T. (also known as the Real Wealth valuation method). World Development Indicators retain a discount rate of 4 percent across countries for present value calculation.

$$MD_t = 1/T \sum_{i=0}^{T} \frac{R_t}{(1+0.04)^i}$$

The rent at the period t, R_t, is measured as the difference between the output (quantities produced multiplied by world prices) and the market remuneration of factors (intermediate inputs, labor, and capital – see Annex, Table A.2) used to extract the mineral resource (including acquisition, exploration, development, and site restoration) The present value computation of mineral depletion for a given period assumes that the rent (i.e. prices, quantities produced and costs) will be similar every year until exhaustion. Our computation of mineral depletion however, accounts for evolving world prices and costs (per World Bank forecasts, see Annex, Table A.4) over time, as well as changes in quantities extracted (per companies development plans) and the discovery of new reserves (until April 2012).

[5] In 2011, Ghana borrowed US$3.0 billion from the China Development Bank, at non concessional terms to finance public investment projects over the period 2012-15.

[6] See World Bank (2011a), The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium, Washington D.C.

8. **Comparing Ghana with Liberia and Sierra Leone illustrates the daunting governance challenges these last two countries will face in the coming years.** Ghana, which ranks among the best countries in Sub-Saharan Africa for governance (the use of public resource), equity and macroeconomic management, with Country Policy and Institutional Assessment (CPIA) ratings between 3.8 and 4.0 since 2006, saw its adjusted net savings dropping by almost 6 percentage points since 2006 (as mineral depletion was not offset with sufficient additional savings). Liberia and Sierra Leone, starting from much more fragile initial conditions, with CPIA respectively at 2.9 and 3.3, and adjusted net savings at 3.5[7] and 0.2 percent of Gross National Income (GNI) in 2010, see Table 1, could very possibly see their national wealth declining. Liberia's "growth without development" and Sierra Leone's diamond conflict devastating episodes are obvious reminders to consider natural resource management as paramount for sustainable development.[8]

Table 1: Wealth Accounting, 2010 (% of GNI)

	Ghana	Liberia	Sierra Leone
Gross National Savings (GNS)	18.8%	16.7%	7.3%
Consumption of Fixed Capital (CFC)	10.1%	9.7%	6.7%
Education Expenditure (EDU)	5.3%	3.1%	3.5%
Natural Resource Depletion (NRD)	7.7%	5.5%	2.1%
Inc. Mineral Depletion (MD)	6.3%	1.7%	0.6%
Environmental Degradation (ENV)	0.2%	1.2%	1.8%
Adjusted Net Savings (ANS)	6.1%	3.5%	0.2%

Source: World Bank staff calculations.

9. **Beyond the difficulty to project outputs, costs and prices, the computation of mineral depletion is subject to several additional complications.** Two other factors, not taken here in consideration in the computation of Adjusted Net Savings, could further worsen the picture of likely negative adjusted net savings. First, in countries such as Ghana, Liberia and Sierra Leone, where population is growing fast, above 3 percent every year, per capita wealth grows more slowly (or declines more rapidly) than what the evolution of ANS suggests. Second, the possible environmental damages from greater mineral depletion are not here accounted for. Conversely, mineral wealth is not static, as determined by exploration activity and related discoveries.[9] Thus new discoveries should be taken into account in the computation of mineral depletion, with the result of lowering the impact of extraction on mineral wealth. According to Gelb and al. (2012), world oil reserves before extraction grew by 41 percent (4.4 percent annually), gas reserves by 35 percent (3.8 percent annually), iron ore by 23 percent (2.6 percent annually), and gold by 56 percent (5.7 percent annually) between 2000 and 2008. Assuming that these trends would apply to Ghana, Liberia and Sierra Leone over the period

[7] The computation of Liberia's Adjusted Net Savings is rendered delicate due to (i) the size of UNMIL transfers to Liberia (exceeding GNI by 37 percent in 2010), and (ii) uncertainty regarding actual private consumption. The estimate of a 16.7 percent Gross national Savings rate retains the assumptions that (i) 50 percent of UNMIL transfers are invested (military building and equipments). A new household survey to be conducted in 2012 is anticipated to significantly revise upwards private consumption, thus lowering Gross National Savings as a percentage of GNI.

[8] See World Bank (2011b), World Development Report: Conflict, Security and Development, Washington D.C., which highlights the high likelihood of conflict resumption in fragile states

[9] See A. Gelb, K. Kaiser, and L. Vinuela (2012), How Much Does Natural Resource Extraction Really Diminish National Wealth? Working Paper #290, March, Center for Global Development, Washington D.C.

2012-15, mineral depletion would be 2.6 percent lower in Ghana by 2015, 0.3 percent lower in Liberia, and 3.2 percent lower in Sierra Leone than without any change in proven reserves as of late 2011. It would thus not fundamentally modify the picture. Much more significant would be the consideration of higher discount rates to compute mineral depletion. [10] At 10 percent (instead of 4 percent, reflecting higher social preference for the present), mineral depletion in 2015 would be 28 percent lower in Ghana, 40 percent lower in Liberia, and 28 percent lower in Sierra Leone.

10. **In all likelihood, Liberia and Sierra Leone will not be able to capture all the rents in the years to come**. As many countries, Liberia and Sierra Leone do not have the capital and technical expertise to extract alone mineral resources and thus need to attract foreign companies to do so. With perfect information and competition, foreign companies' remunerations should match their exploration and production costs, leaving all rents to Government if the awarding of contracts follows a transparent process. In practice, however, perceived risks of predation (e.g. conflicts, unstable fiscal regime) in fragile states might limit companies' demand for concessions (and thus Government's market power during negotiations), inflate insurance costs, and eventually lower rents accruing to Government, before the country can establish its reputation as a safe investment heaven. Governments' difficulties to assess correctly risks and the mining potential can also play against them during the negotiation phases, as could do their inability to audit firms' accounts when it is time to assess corporate profits and thus taxes. In the face of these risks, governments could decide to delay extraction until they build sufficient capacity to effectively collect the rents. But populations' preference for the present (and related political pressures on elected governments) and the existence of significant economies of scale (prompting companies to extract in large quantities) might not give governments the time needed to improve accordingly their institutional absorptive capacity (to capture the rent and invest). In 2011, Ghana's Government was able to capture 30 percent of the mineral rents, and is ambitioning to elevate this figure to 68 percent by 2015, as oil companies will have amortized most of their capital expenditures, and tax administration of the mining sector will have improved. In both Liberia and Sierra Leone, revenue projections point to the objective of capturing about 50 percent of iron ore rents by 2015 (See Annex, Table A.3).

Figure 2: The Extractive Industries Value Chain

11. **This puts an even higher obligation on ensuring that collected mineral revenues generate high social returns.** The Extractive Industries Value Chain model (see Figure 2) used by the World Bank to assess the contribution of extractive industries to sustainable development distinguishes five

[10] Liberia and Sierra Leone's population remain extremely poor (with GNI per capita respectively at US$200 and US$340 in 2010), with very low life expectancy (57 and 48 years old at birth respectively), and thus discount rates – preference for the present -rapid extraction and spending, likely to be very high. In recognition of the latter, the computation of mineral depletion across countries actually uses a 4 percent discount rate across countries to reflect some preference for the present, see Box 1.

important steps. Steps 1, 2, and 3 emphasize countries' interest to capture the largest possible part of the rent, through negotiating exploration and extraction contracts with foreign companies (fiscal and regulatory regimes) and developing an effective and transparent fiscal revenue collection system. Steps 4 and 5 insist on converting the captured rent into investments with high social return for sustainable development. Given the large orders of magnitude discussed previously, these last two steps bear fundamental macroeconomic implications, which go much beyond mineral sectors' scope (and communities living around extractive sites). First is the need to insulate the economy from mineral commodity prices volatility, as the latter, through its impact on budget volatility and macroeconomic uncertainty affects first and foremost investment, public and private. Second is the need to mitigate the impact of an almost inevitable real exchange rate appreciation (an increase in the price of non tradable goods and services over tradable goods and services) on production costs, competitiveness, and productivity, all affecting investment decisions in the long run.[11] And third is the need to encourage savings (discourage rents dissipation) through sound fiscal (positive gross public savings) and monetary policies (positive real interest rates, low inflation), and an improved investment climate. Debt management capacity, to borrow against future windfall gains can here be also instrumental to bridge current investment needs with future financial resource, when immediate consumption cannot be contained. At the institutional level, the ability to enforce resource allocation through sound public financial management, and to maximize the efficiency of public investment (including in human capital, through effective human development interventions) through proper project selection, appraisal, procurement, budgeting, implementation and evaluation are also key.[12] The collaboration with private companies for infrastructure development, when economies of scale can be leveraged for mutual benefit, can also be a way to convert rents into investments. As for building the capacity to capture rents, governments will also need time to build the institutional capacity to wisely manage rents – something they might not get as caught by realities. In Ghana, the petroleum revenue management act and the petroleum regulatory frameworks were approved after first oil (and more than 3 years after oil finds were declared commercial), and their effective implementation will take time.

12. **The quality of governance arrangements will be critical to countries' ability to invest their mineral wealth in development assets.** Transparency is widely recognized in this regard as key to ensure the development of accountability mechanisms, political and legal, and to empower demand for good governance and the collective good through an inclusive process. It is also instrumental to the management of anticipations and perceptions, which both can have significant consequences on economic and social stability. How contracts are approved, how companies respect regulations, how funds are channeled to the budget, are dimensions receiving a lot of attention, through the Extractive Industry Transparency Initiative notably. Processes and institutions to manage collected rents (the last two chevrons of Figure 2) have been receiving less attention, maybe because it is less straightforward to establish benchmarks of good practice in these domains, as fundamentally depending on the comparison of (not widely available) social rates of returns of various spending choices. However, these are at least as important for sustainable development, and transparency requirements need to extend to the areas of public expenditure effectiveness, efficiency and equity. One strong argument to support Natural Resource Funds (NRF) is that it generally raises public scrutiny on resource allocation.

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[11] See World Bank (2009), "Economy-wide Impact of Oil Discoveries in Ghana", Washington D.C., for a detailed discussion on the impact of spending oil revenue on incomes and poverty.

[12] See Barma, N., K. Kaiser, T. Minh Le and L. Vinuela (2012), Rents to Riches?, World Bank, Washington D.C., for a detailed discussion on key macroeconomic policy choices (consumption/savings, resource allocation, public investment management) related to natural resource management.

13. **The rest of this overview tries to compare countries' degrees of preparedness to confront these various challenges, and to draw emerging lessons which could be replicated elsewhere.** The overview is followed by individual chapters for each of the three countries, scoping mineral prospects and country specific challenges, organized around four topics: (i) mineral activities prospects, (ii) mineral revenues prospects; (iii) fiscal space, macroeconomic and public financial management capacity, and (iv) political absorptive capacity. The consideration of this last topic acknowledges the importance of political economy factors in countries' capacity to develop and implement long term natural resource-led development strategies, the more so in post-conflict countries such as Liberia and Sierra Leone.

Compared Challenges and Emerging Lessons

14. **All three countries encounter difficulties in their fiscal interactions with mineral companies**, the most common of which being that of independently assessing companies outputs, revenues and profits. This difficulty commonly reflects insufficient sector expertise, complex (and often company-specific) fiscal regimes, and lack of coordination between the various collecting agencies. The Extractive Industry Transparency Initiative, for which both Liberia and Ghana have been declared compliant (while Sierra Leone is still candidate) has helped reconcile accounts declarations between companies and Governments and reduce the potential for corruption, but is not a substitute for improved tax administration. In recent years, Ghana has simplified its fiscal regime for mining and aligned it with the general tax code, limiting the possibility to (i) front-load capital allowances, (ii) transfer losses from one site to another, and (iii) perpetuate tax holidays. From 6 percent of the rent in 2010, corporate taxes on gold companies rose to 12 percent in 2011 in Ghana. And while stability of contracts is important for investors, the current attraction of investors for extractive industries in Liberia and Sierra Leone gives the opportunity to simplify and align fiscal regimes. Transparent auctions to allocate concessions and set royalty rates could be considered.

15. **The local content agenda comprises several dimensions.** There are efficiency limits to imposing local content legal obligations to companies (in order to develop multiplier effects), unless one can ensure a strong and competitive supply response to companies' demand. While developing the domestic supply of some specific inputs (e.g. skilled labor) might take time as currently unavailable in countries, other domestic inputs (e.g. catering, furniture, etc.) could more easily be used by foreign companies. Ongoing efforts from the Ghana's Chamber of Mines to identifying opportunities for increasing supply and assessing support needs of local enterprises could deliver effective results, as pulled by realistic local content regulations being re-drafted at the same time. Another important dimension of the local content agenda lies in Government ability to "formalize" the currently large informal mining sectors, through the provision of public goods (e.g. safety) which could encourage miners to pay taxes and comply with regulations (environment, trade). A third facet of the local content agenda lies in countries willingness to take greater equity participation in extractive activities, oil and gas in particular once discoveries are confirmed. While acquiring greater "voice" can be strategically useful (to enforce local content and protect the environment for instance), it is also costly as initially reducing net revenues accruing to the budget (given the need to service the related debt and contribute to capital expenditures, before dividends start to surpass amortization), and increasing countries' debt exposure to natural resource risk (price volatility, reserves uncertainty).

16. **Stabilization mechanisms can also take various forms.** Given commodity price volatility, there is no doubt that stabilization mechanisms can be helpful to contain macroeconomic instability and its negative impact on investment. The establishment of stabilization funds (or natural resource funds)

is often considered as a desirable answer to this problem, in their capacity to be used counter-cyclically to protect the budget. Nevertheless, their effectiveness to stabilize the economy might be limited by countries' difficulties to build sufficiently large buffers and manage them adequately, given (i) their little capacity to collect rents and channel them into the budget, (ii) the difficulty to rapidly reach an optimal level of savings,[13] and (iii) the high preference for the present (thus for current consumption over future consumption). Also, the recommendation to invest NRF savings abroad (justified by the need to decouple NRF investments from domestic business cycles) is often politically unappealing, given the perception of high social returns to domestic investments. This point was powerfully advocated by the Vice President of Ghana during the public debate on oil revenue management in 2011, when he stated that the country could not reasonably save its oil revenue into a wealth fund to be invested abroad whereas "our mothers are dying on their way to the [too distant] maternal clinics". Thus, other mechanisms can be mobilized to complement stabilization funds, including hedging mechanisms (as in Ghana), cost recovery mechanisms for utilities (to transfer energy price volatility risks to wealthy customers), and contingent foreign currency reserve and debt management accounting for new trade composition and partners.[14] Overtime, the diversification of the economy through large investments in non mineral sectors will also contribute to strengthen stabilization mechanisms.

17. **Countries might need to massively rely on foreign investors and lenders to deliver their investment plans.** In Liberia, and possibly Sierra Leone, the capacity of the Government to manage and implement investment programs is very limited, and the size of public investment plans small compared with that of foreign investors in mineral sectors. Thus, there are potentially very large economies of scale which could be mobilized to the mutual benefit of governments and companies, through the establishment of stable and transparent public private partnerships. Also, given the likelihood of a surge in public revenues in the medium term (after companies have exhausted tax holidays opportunities, amortized their capital expenditure and reached full operation capacity), Liberia and Sierra Lone could be interested to front-load their external borrowing to invest, as did Ghana. This strategy could present several advantages. First, it would reduce the risk of creating enclave economies, where mineral sectors flourish without providing any immediate benefit for the population. Second, it would produce stabilization effects, as smoothing public spending in comparison of a situation where public spending would be purely determined by revenue cash flows.

18. **Development assistance could be particularly instrumental to ensure the success of a front loaded strategy**. By front-loading their own assistance, Development Partners would contribute to smoothing revenues for the Government, and would help crowding in private investors. Through various instruments, Development Partners could also strengthen countries capacity to manage their future own revenues more efficiently. The agenda there is large, from public financial management and investment planning, to the development of sound and transparent institutional frameworks for natural resource management (including through the provision of technical assistance for negotiating contracts, auditing extractive firms, and managing natural resource funds). Such a strategy is not without risk, as countries are entering in eras of greater economic and maybe political instability. But the alternative, where assistance would be aligned to natural resource flows, could be even riskier, as (i) being pro-

[13] In Ghana, US$54.8 million were saved in the stabilization fund in 2011, out of a total of US$444 million accruing to the Government. As such, the stabilization fund is able to cover for a 13 standard variation in oil prices, which could be considered insufficient given the observed standard deviation around the mean, 27% over the period 2008-11. In Ghana, Liberia and Sierra Leone, companies are de facto free to repatriate abroad all their earnings.

[14] See IMF and World Bank (2011), Managing Volatility in Low-Income Countries: The Role and Potential for Contingent Financial Instruments, October, Washington D.C.

cyclical, (ii) leaving less time to countries for developing the needed institutional frameworks and technical capacity for natural resource management, and (iii) maybe less effective in an environment where official development assistance would become less important in relative terms compared to mineral revenues accruing to Governments.

II. GHANA

Mineral Activity Prospects

19. **Ghana's mineral reserves are significant.** Ghana is the 9th largest world producer of gold. With 9 licensed international mining companies, total gold production reached 3.4 million Oz in 2011, up from 2.5 million in 2000. Other resources, less or not mined at all, include manganese, bauxite, diamonds, iron ore, limestone, kaolin, feldspar, silica sands, phosphate, nickel, chromium and uranium. By 2015, the stock of exploitable gold reserves could grow to 45.1 million Oz (up from 38.6 million in 2010), after granting licenses to 7 new companies.

20. **Besides, the Minerals Commission has started investigating seven mining concessions[15] to accommodate small-scale miners, some of whom are currently operating illegally**. In practice, some of the small-scale miners prefer to remain in the informal sector where they will not pay taxes.[16] Their operations are unlicensed, and when artisanal, often dangerous to human life and harmful to the environment. As part of its plans[17] to regulate their operation and build their capacity, the Minerals Commission anticipates that the contribution of small-scale miners to total gold production could increase from 23 percent in 2010 (i.e., approximately 1 million Oz) to 30 percent by 2013. It is estimated that between 500,000 and 1 million people work in artisanal and informal mining.

21. **With proven off-shore reserves of about 500 million barrels, and 24 millions produced in 2011, prospects for oil and gas sector development are positive.** Production in the Jubilee Phase 1 reached 85,000 barrel per day in 2011, the first full year of production, and is expected to reach a plateau of 120,000 in 2012[18] - the maximum capacity the existing infrastructure (a floating, production, storage, and offloading vessel) can handle. With the pipeline to be completed in 2013, Ghana would also be able to exploit economically (principally for electricity generation) the gas (120 million cubic feet per day) which comes as a by-product. Beyond 2015, recent discoveries could bring oil and gas production at higher levels. Production plans are being developed in this respect.

Mineral Revenue Prospects

22. **Mining sector revenues are obtained from royalties, corporate income tax, pay as you earn personal income tax, and the withholding tax on dividends and foreign outsourcing**. In 2011, mining tax revenue reached 1.8 percent of GDP. Oil revenue, in the form of tax and non tax revenue, amounted to 1.2 percent of GDP in 2011, and is projected to reach 1.9 percent in 2012.

23. **Over the past two decades, the country has operated a generous legal and fiscal regime aimed at attracting major multi-national mining companies to invest in Ghana**. The Mineral Act 703 of 2006 exempts mining right holders from payment of customs import duty in respect of plant, machinery, equipment and accessories imported specifically and exclusively for the mineral operations, as well as staff of mining companies from the payment of income tax on furnished accommodation at

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[15] Prestea,Kutukrom, Japa, Awisam, Akoase, Berakum and Datoko.

[16] About half of the small scale mining production is purchased legally through the central purchasing power.

[17] Such plans are however still lacking provisions on the management of investigated sites, extension services and the mitigation of social and environmental impacts.

[18] Initially anticipated to last until 2016, the plateau period could be extended for a maximum of 10 additional years through the development of Jubilee phases 1A and 1B.

the mine site. It also allows mining companies to front-load the amortization of capital expenditures (i.e. capital allowances for reconnaissance, exploration, and extraction), which de facto reduces declared profits, and thus corporate taxes. In conflict with the Internal Revenue Act 592 of 2000, most signed mining agreements include indefinite carry forward losses provisions, further reducing de facto declared profits. Finally, capital gains realized on mineral concessions have not been taxed in the past, encouraging the selling of mines after general tax holidays have been exhausted.

24. **At the regulatory level, the mining sector also suffers from coordination, capacity, transparency and conflict of interest issues.** Tax and fees from the mining sector are being collected by various administrations,[19] with unclear respective responsibilities, weak capacity and lack of coordination. As a result, the Government's Large Taxpayer Unit relies on self-assessments of mining companies (including for production figures, as Customs do not have the facility and capacity to verify the weight and quality of gold independently), and does not have adequate expertise to check accounts and perform audits. A general review of exemptions conducted by the Government in 2010 did not include the mining sector. Besides, if the Mining Act of 2006 grants responsibility to the Parliament to ratify large mining leases and contracts, the performance of these responsibilities is affected by executive dominance, and thus checks and balances supposed to secure independent control are rendered dysfunctional. Also, cases of conflict of interest have been occurring in the recent past, with members of the Parliamentary Select Committee directly involved in mining activities and sitting in boards of companies.[20]

25. **In recent years, budget laws have tried to improve revenue collection from the mining sector.** This included raising in 2010 the royalty rate from the sliding 3-6 percent range to 5 percent and simplifying its computation to limit tax evasion. But stability clauses prevented their broad implementation, as the 2 largest mines, representing 2/5 of total output staid insulated. In 2012, the Government introduced a windfall tax of 10 percent and a capital gain tax on mining concessions, increased corporate tax from 25 to 35 percent, limited yearly capital allowances to 20 percent of corresponding capital expenditures, and prevented companies to transfer costs from one mining site to another to inflate costs. A re-negotiation team was also set up to harmonize agreements and accounting rules for assessing mineral revenue through legislative instruments for Act 703, and a mineral revenue task force to coordinate collection efforts.

26. **The more recent fiscal and regulatory petroleum regimes also try to address some of the shortcomings encountered in the mining sector.** The fiscal regime includes a 5 percent royalty on production, a 35 percent corporate tax, a 20 percent capital allowance, and a progressive windfall tax (additional oil entitlement) depending on the value of the rent (above the unit cost of US$50 per barrel). The Petroleum Revenue Management Act 815 of 2011 clarifies revenue collection provisions and responsibilities for the upstream oil and gas sector, while the Petroleum Commission Act 821 of 2011 clarifies regulatory responsibilities and confines the role of the Ghana National Petroleum Corporation to commercial operations.

27. **Progress is also being made in terms of defining and agreeing on realistic local content objectives and obligations.** Regulations are now being developed, in consultation with the mining sector, to give effect to mining code provisions on local content. While the code requires preference to

[19] The Minerals Commission, the Ghana Revenue Authority (under which are located the internal revenue service and customs), district assemblies, and the office RS and the Office for the Administration of Stools and Lands.

[20] See Ayee, J. T. Soreide, G. Shukla and T. Le (2011), "Political Economy of the Mining Sector in Ghana", Policy Research Working Paper 5730, The World Bank , Washington D.C.

be given to local companies that can match the cost and technical aspects of imported products, these provisions have so far not been sufficiently developed, disseminated, monitored, and enforced. In the face of it, Ghana's Chamber of Mines has undertaken a process of identifying opportunities for increasing supply and assessing support needs of local enterprises. To support realization of these opportunities, the Ghana Chamber of Mines has also identified collective actions by the mining companies to support local procurement.

28. **In 2003, Ghana signed onto the Extractive Industry Transparency Initiative (EITI) and was declared EITI compliant in 2010 for mining activities.** In 2010, EITI principles were extended to oil and gas sectors. Transparency provisions included in the Petroleum Revenue Management Act 815 were also considered satisfactory by most Civil Society Organizations. In this light, government has developed the draft Oil and Gas Reporting Templates for Ghana. The scope of reporting has also gone beyond government revenues and companies payments, to include information such as government expenditures at the national and sub-national level. With about seven publications, Ghana EITI reports have become regular and improved significantly in content. The initiative is robust enough to disclose the use of revenue from exploited resources in the medium term. Meanwhile, Ghana's 2010 Corruption Perception Index score increased to 4.1 out of the maximum possible score of 10, compared with 3.9 in 2008 and 2009.

Fiscal space, macroeconomic and public financial management capacity

29. **Ghana's medium-term policy framework is guided by the Ghana Shared Growth and Development Agenda (GSGDA) 2010-13.**[21] With first oil and the attainment of middle income status with upwards revision of the national accounts in 2010, the GSGDA lays the foundation for the rapid structural transformation of the economy, premised on agricultural modernization and a sustainable exploitation of mineral resources. Public expenditure priorities are agriculture, infrastructure (including oil and gas development), and health and education. In total, the Government estimates that US$23.9 billion of services and investment expenditure would be needed over the 4-year period to implement the GSGDA. Of the total, 54 percent of spending would be on infrastructure, and 25 percent on human development.

30. **Recent stabilization efforts and the onset of oil production have created some fiscal space to finance GSGDA programs.** With oil, improved tax collection, and the containment of current expenditures (strengthened expenditure controls, improved wage negotiation systems, restoration of cost recovery mechanisms), the difference between revenue (excluding grants) and current expenditures (excluding arrears clearance) dropped from -1.6 percent of GDP in 2008 to +2.7 percent in 2011 – that is more than 4 percent of GDP (or US$1.6 billion in 2011) made available to finance capital expenditure without resorting to deficit financing. But this remains largely insufficient to cover an estimated funding gap of US$12.5 billion to finance GDGA programs over the period 2010-13, the more so as grants are projected to decline from 3.0 percent of GDP in 2009 to 1.2 percent in 2012.

31. **Additional fiscal space is being sought through non concessional external borrowing.** In particular, Ghana signed in 2011 a Master Facility Agreement with the China Development Bank for US$3.0 billion, using the possibility to use projected oil revenue as collateral. Projects to be financed under the Facility comprise in particular the needed pipeline infrastructure to exploit gas and transport infrastructure to exploit new mineral resources (including 100 million metric tons, or two thirds of

[21] The GSGDA is itself part of the broader "Coordinated Programme of Economic and Social Development Policies, 2010-16", which extends Ghana's development strategy until 2016.

mineral reserves to be licensed for exploitation before 2015) in the Western region. Fiscal space is also sought through the development of Public Private Partnerships (PPP), for which a policy has been approved in 2011 and capacity for regulation is being developed at the Ministry of Finance.

32. **From a macroeconomic management perspective, Ghana's mineral resource-based development strategy faces a number of challenges.** The first one lies in the need to develop stabilization mechanisms against mineral prices volatility. Several mechanisms already exist, but their robustness needs to be tested technically and politically in bad times. This includes the stabilization fund created under the Petroleum Revenue Management Act 815, which still needs to be replenished (at some opportunity cost) to be effective; the hedging mechanism against oil price fluctuations, which some wrongly understand as a way to permanently subsidize petroleum products; and cost recovery mechanisms for electricity (which generation is highly oil and gas intensive) and petroleum products, which in the past, were often cancelled in bad times. Another one is the holding of foreign currency reserves at the Bank of Ghana, which rose from 2 months of imports in 2008 to more than 3 months in 2011 (US$5.0 billion). As Ghana's trade channels are shifting towards China, the Bank of Ghana could re-visit the currency composition of its reserves to provide better hedging against exposure to new risks. Finally, Ghana's debt management strategy increasingly needs to factor risks stemming from larger non concessional borrowing and PPP-related contingent liabilities.

33. **Protecting the economy against real exchange rate pressures and the deterioration of the tradable sector's competitiveness is another challenge.** While real exchange appreciation is almost unavoidable, it needs to be accompanied with productivity gains, in the tradable sector in particular, for diversification and sustainable development beyond the mineral boom. This renders the public investment programs central to the success of the overall development strategy, and calls in particular for strengthening the public investment management framework. While project selection, procurement and implementation practices are considered functional, Ghana needs to develop its capacity to appraise projects (including through independent reviews), and evaluate them when completed. Also, coordination between debt management, project analysis and budgeting functions needs to be strengthened to better assess the budgetary and debt implications of public investment programs. Besides, a number of bottlenecks need to be removed in the non-tradable sectors, land and finance in particular, to avoid the unnecessary development of rents and asset bubbles.

34. **Ghana has been pursuing important public financial management reforms to improve the efficient use of public resources and to enhance its local procurement and planning capacity.** Notable among the reforms include Ghana Integrated Financial Management Information System (GIFMIS), Programme Based Budgeting (PBB), Wage and Payroll Management. These reforms are expected to resolve the current weakness in budget management and better align government expenditure to the Ghana Shared Growth and Development Agenda (GSGDA) 2010-13. For instance, the GFMIS will serve as the official system of record to meet the Government budget, financial accounting and reporting, disbursements, internal control, and auditing requirements. In 2012, government intends to roll out the modules of the system to 23 Ministries in Accra and 10 regional capitals. Meanwhile, the PBB which was piloted in 2 Ministries (Tourism and Communication) will be rolled out to cover additional 5 Ministries, including Education, Health and Agriculture.

Political Absorptive Capacity

35. **Ghana's ample political business cycles underline the high risk of political capture of mineral rents.** There is now ample empirical evidence to suggest that, in pre-election years, the fiscal

budget constraint has been relaxed by the Government of Ghana to meet myopic expectations from potential swing voters.[22] Since the resumption of democracy in 1992, there has been an exceptionally large fiscal deficit nearly each election year, followed by a painful fiscal adjustment afterwards, with those in 1992, 1996, and 2008 proving especially destabilizing. On average, deficit was 1.5 percentage point of GDP higher in the year preceding elections. Fiscal instability has pushed up inflation and the real interest rate, and has reduced private investment below its potential. It has also affected the quality and sustainability of many public investment projects, often hastened before elections (without proper budgeting, and expedited procurement), to be interrupted afterwards. As the consequence of self-fulfilling expectations from foreign investors fearing macroeconomic instability in 2012, the rapid depreciation of the Ghana Cedi in early 2012 could be the early sign of a repeated history.

36. **2012 election year is no exception, but Ghana might be better equipped this year to contain demand pressures.** As observed in previous election years, labor unions might opt for strike actions to force the government to bend its fiscal rules. In 2011, the teachers and medical unions used strike actions as their main tools to get government to increase their base pay as part of their migration unto the single spine salary structure. Uprising in neighboring Nigeria may also indirectly influence wage negotiations in Ghana. Nonetheless, the introduction of a centralized wage negotiation mechanism in 2011, and the large wage increases (including wage arrears clearance) introduced in the budget law 2012 should help containing wage-related fiscal slippages. As for public investments, the restoration of commitment controls and commencement certificates in 2011, as well as ample investment provisions in the budget law 2012 will also help contain fiscal slippages, unlike in 2008 when large spending Ministries (especially Energy and Roads) could contract new projects without initial clearance from Ministry of Finance.

37. **Since the last election in 2008, the nation has seen vigorous debates on how to address political business cycles.** Progress is driven by several important developments. Gaining from the experience of democratic transitions to power, political parties now factor in the fact that no election will be their last, encouraging them to take a longer term view towards electoral processes. The private sector is also emerging as a key swing voter against parties willing to sacrifice the nation's investment climate for reelection. Finally, organized civil society organizations and other groups of citizens are increasingly demanding accountability from government – as reflected in civil society advocacy for responsible petroleum revenue management or independent budget analysis among many other examples.

38. **In Ghana, there is a tradition of inter-party election engagement rules, which play important role in shaping activities and interests of parties towards achieving common goals.** This instrument could be broadened to the core principles of good economic governance and fiscal responsibility, through quantitative fiscal rules, and/or processes and accountability mechanisms to maximize the quality of public investment projects. In Ghana, like in any country facing a similar challenge, the fundamental issue is the acceptance and ability of ruling political forces to renounce the discretionary power provided by windfall revenues. Various options are technically possible to limit discretionary use, but their effective implementation is all predicated on consensus building among political forces, and on the recognition that the threat of letting other parties take advantage of a discretionary use of funds (and its consequences on institutional stability) could be potentially more

[22] See Ghana: Joint Review of Public Expenditure and Financial Management, MoFEP, 2011; Banful A. (2011), Do formula-based intergovernmental transfer mechanisms eliminate politically motivated targeting? Evidence from Ghana, Journal of Development Economics, Vol. 96; Block, S. (1999) Political Business Cycles, Democratization and Economic Reforms: The Case of Africa, August, Tufts University, Medford.

harmful than the benefit it could derive from such funds. Given the now high likelihood of democratic power transition in Ghana, the current administration could find interest in limiting future governments' discretionary use of mineral revenue.

III. LIBERIA

Mineral Activity Prospects

39. **Liberia mineral reserves are significant.** Liberia has traditionally relied on mining, namely iron-ore, gold, and diamonds, as a major source of income. Nearly 14 years of war (1989-2003) destroyed much of the country's productive infrastructure and brought mining to a virtual halt. Liberia, which used to be the largest exporter of iron in Africa, and third largest in the world is estimated to hold reserves ranging from between 2 to 5 billion metric tons of iron ore. Western Liberia is made up of rocks of Archean age that contain diamond, gold, iron ore, nickel, manganese, palladium, platinum, and uranium. The Eastern part on the other hand, is s made up of rocks of Birimian age with significant potential for gold. Liberia's total gold reserves are estimated at 3 million ounces.

40. **Mining is now resuming in Liberia, thanks to the renewed global demand for minerals and the return to relative peace and stability in Liberia.** The ban on all exports of diamonds from Liberia was lifted in 2007, while most foreign investors who had abandoned their mining plants because of the war resumed discussions with Government around the same time. A new Mineral Development Policy and Mining Code was put place, which outlined five types of mining license: (i) reconnaissance, (ii) exploration, (iii) Class A (for small-scale alluvial operations, available for Liberians only), (iv) Class B (for 5 years), and (v) Class C (for 25 years, requiring a feasibility report). According to the December 2012 report by Liberia Extractive Industry Transparency Initiative (LEITI), there are 171 operators in the mining sector.

41. **Major investments are taking place in the mining sector.** The Government of Liberia has signed Mining Development Agreements (MDAs) with four key iron ore companies: China Union, Arcelor Mittal, BHP Billiton and Putu, which are at various stages of readiness to start production, over the period 2011-2015. MDAs foresee that the four companies will invest a total of US$8.0 billion over the period of exploitation, and create about 10,000 jobs. Investments comprise, among others, rehabilitation and installation of new mining plants, construction railways, roads and bridges.

42. **About 30,000 to 45,000 persons are engaged artisanal and small-scale mining (ASM) in Liberia.** Most of artisanal miners operate informally, and account for about 90 percent of diamonds produced in Liberia. The ASM sector has the potential to create employment, generate income and help to reduce poverty in rural areas. However, it also has the potential for significant environmental degradation, negative social and health and life threatening pollution of bio systems (e.g. mercury from ASM gold recovery). Furthermore, most Liberian diamonds are being smuggled to Sierra Leone in violation of the Kimberley Process. The National Mineral Policy which was introduced in 2010 seeks to use an integrated approach to address ASM issues; making ASMs an integral part of rural development plans and promoting a healthy relationship between large-scale mining enterprises and the ASM sector The smaller-scale miners can benefit from technical inputs and advice from the large-scale operators as well as providing markets for further processing at the large-scale facilities (the "out-grower" concept).

43. **Oil and gas prospects are high.** With the recent oil finds in Sierra Leone and Ghana, interest in Liberia's oil and gas is increasing. The Government of Liberia, through the National Oil Company of Liberia (NOCAL), has so far awarded ten blocks of offshore Production Sharing Contracts (PSCs) to

foreign concessionaires[23]. Most of the companies that have received oil concessions have began drilling. Additional twenty blocks of offshore PSCs are being processed for bidding. In February 2012, Africa Petroleum announced that it had made a commercial oil discovery off shore of Liberia. However, production is not likely to begin before year 2015.

Mineral Revenue Prospects

44. **Iron ore production could significantly increase Government revenue.** According to the LEITI report (2012), the mining sector's total contribution to government's revenue in 2009/10 fiscal year was US$38 million, or about 4 percent of GDP. About 90 percent of the mining sector's payments were upfront payments made by the major iron ore companies. With the commencement of the large iron ore projects (Arcelor Mittal in September 2011; China Union in 2014 and BHP Billiton in 2015), Government revenue from the mining sector could amount to $215 million in 2015, or 7 percent of GDP, assuming full compliance with the fiscal and regulatory regimes.

45. **However a recent assessment of the mining sector[24] showed that there are still gaps with respect to Government's readiness to harness the full potential of the prospective mineral boom in Liberia.** The legal, regulatory and fiscal framework of the mining sector suffer from several shortcomings, including (i) a lack of harmonization in tax regime (sign-off bonuses, royalties, community tax and corporate are subject of negotiations); (ii) no progressivity in the tax regime (no windfall tax, hence no possibility to capture rent during booms and protects activity during busts), (iii) a weak institutional capacity to audit mining activities and ensure compliance with regulatory and fiscal regimes, including with the Kimberley Process for diamonds.

46. **The Petroleum Act 2002, which is employed for awarding exploration concessions, is not suited for production.** Conflict of interest could arise from the fact that the Act grants NOCAL both regulator and commercial operator rights. Overall principles for acreage release, the bidding process and the fiscal regime are not clearly spelt out, leaving the possibility for unequal treatment of concessionaires.[25] And provisions for revenues accruing to NOCAL under the Act might need to be revisited before production starts to ensure that oil revenue is eventually channeled through the Budget.

47. **In May 2008, the government established the Liberia Extractive Industry Transparency Initiative (LEITI) (with membership from the government, civil society, the private sector and donors) to help ensure transparency and accountability in the mining and forestry sectors.** The LEITI Secretariat's first full audited report of receipts and payments from the extractive industries was published in February 2009. Liberia was designated an EITI compliant country on October 14, 2009 becoming the first country in Africa to be so designated and the second country in the world. The 3rd EITI Report covering the period July 1, 2009-June 30, 2010 and involving one hundred and twenty-one (121) mining, oil, agriculture and forestry companies. The report was published on December 22, 2011 and is available online. The concession-contracts and agreement are also published on the LEITI website. The possibility to extend LEITI principles to oil and gas is not yet considered.

Fiscal space, macroeconomic and public financial management capacity

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[23] These include Chevron, Anadarko, Hong Kong Tong-Tai, Regal and Pepper coast Petroleum

[24] See Baunsgaard, T., S. Caner, and A. Watson (2011), "Liberia -Selected Tax Policy Issues : Petroleum, Mining, Forestry, and Indirect Taxes", International Monetary Fund, Washington D.C.

[25] Currently some concessionaires have 10-year tax holiday while others do not.

48. **The second Poverty Reduction Strategy (PRS2) will be approved in 2012, following consultations with citizens started in February 2012.** One of the main objectives of the PRS2 is to diversify the structure of the economy away from the mineral concessions. This will entail pursuing growth in the other sectors such as agriculture, manufacturing and services. Infrastructure development is foreseen as critical ingredient in the achievement of such economic diversification. Given the current low level of revenues government will have to find ways of increasing the fiscal space in order to take on board additional capital spending anticipated under the PRS2.

49. **Under PRS2, public expenditure is projected to grow from an annual average of 24 percent of GDP to 34 percent of GDP.** Over the period 2006-10, the Government maintained prudent fiscal policy based on balanced cash-budget management. Thus, starting from a balanced fiscal position, raising public expenditure to 34 percent of GDP is foreseen to be achieved through higher concession fees and royalties from the mining sector, increased foreign grants, and public borrowing - including at non concessional terms. With the attainment of the HIPC completion point in June 2010, risks of external debt distress were strongly reduced (an external debt to GDP ratio of 10.9 percent in June 2011), and the Government is committed to a medium fiscal deficit target of 3 percent of GDP in NPV terms. The borrowing strategy envisages to keep net domestic borrowing at 1 percent of GDP and to front load external borrowing over the period 2012-17 (from 1.6 percent of GDP in 2011 to 5 percent in 2015, before declining to 2 percent in the medium term) to finance infrastructure development.

50. **Leveraging concessionaires' contribution will be critical to effective infrastructure development.** Concession contracts are expected to contribute significantly to infrastructure development in the medium to long term. Out of the US$8 billion to be invested by the mining companies under current MDAs, about US$5 billion is for infrastructure, power and transport in particular. In comparison, Government annual investment spending averaged US$90 million in the recent years, and was well below budgetary allocations, mirroring limited public capacity for project management, and procurement issues related to the limited number of private contractors bidding to execute the projects. The review of MDAs indicates that they retain the principle of third party access to surplus power, port and rail infrastructure developed by mines. Grid connection of mining sites would allow a number of alternative power supply models to be developed. In particular, mines could each sell surplus thermal power to the Liberia Electricity Company (LEC). Or alternatively, a single cost-effective large scale thermal or hydro plant could be developed to supply all mines, with a built in surplus to be sold to LEC. Government is currently working on establishing an effective institutional framework for promoting public-private partnership, but the integration of public and private infrastructure plans under the PRS2 period is not yet fully-fledged.

51. **Liberia's medium term macroeconomic framework is subject to several uncertainties.** A first uncertainty relates to UNMIL (UN security forces) future engagement in Liberia. UNMIL transfers to Liberia amount annually to US$600 million. An abrupt and unprepared reduction of UNMIL presence would have important macroeconomic implications on the Balance of Payments, on economic activity (given the currently large multiplier effects, through demand for domestic goods and services) and on fiscal accounts, given the need to find alternative source of financing – most likely domestic – for security services. A second uncertainty relates to the forthcoming revision in national accounts, GDP in particular, which is expected to portray a richer Liberia, and could thus (i) increase borrowing space and (ii) re-focus policy attention to domestic resource mobilization efforts. Lastly, the lack of stabilization mechanisms against commodity price volatility (e.g. natural resource fund, foreign currency reserve management policy tailored to address commodity price fluctuations) could expose the economy to sharp correction needs, which generally affect primarily investment plans. So far,

Liberia's budget was insulated from energy-related price volatility given the very low level of energy consumption in the country. But ambitious electrification plans, and increased reliance on mining revenues will render Liberia more vulnerable to commodity price fluctuations.

52. **Government's instruments for liquidity management are limited.** Maintaining a stable macroeconomic environment in the face of increased foreign capital inflows will be challenging. The latter could lead to increased supply of broad money (M2) in the short term, which if not sterilized, could to lead to inflation pressures on non-tradable commodities in the economy. This could be a possible threat to government's objective of maintaining single digit inflation over the medium term. The Central Bank of Liberia (CBL) is currently limited in terms of monetary policy instruments because the Treasury bill market has not yet been established. Monetary policy is restricted to weekly interventions in the foreign auction market. The management of money supply is further constrained by the highly dollarized nature of the economy (the dollar accounts for 70 percent of broad money supply).

53. **Risks and impact of exchange rate appreciation are moderate.** World Bank analysis[26] conducted for the preparation of the PRS2 suggests that risks of lost external competitiveness in tradable sectors – the result of real exchange rate appreciation - are modest, for several reasons. First because a large share of the factors of production demanded in sectors of expansion (mining, infrastructure) will be imported; and second because productivity gains stemming from infrastructure development could compensate for the possible increase in the price of non tradable goods, such as land. All in all, the mining sector GDP is projected to grow by 12 percent annually over the period 2013-30; agriculture by 5.0 percent; non-mining industry by 4.0 percent; and services, public and private, by 6.6 percent.

54. **Liberia has embarked on public financial management reforms since 2006; there has been much progress in the legal and regulatory framework but implementation gaps persist**. Government passed the Public Financial Management (PFM) Act in 2009. Key institutions needed to ensure a robust economic governance system in Liberia have been established: namely the National Procurement Commission, the Internal and General Audit Commissions, and Integrated Financial Management System (IFMS). While these institutions are supposed to enhance transparency and accountability in the management of public resources, some of the key areas that PEFA assessment (2008) identified as very weak are still outstanding; (i) multi-year perspective in fiscal planning, expenditure planning and budgeting (ii) effectiveness of internal audit (iii) follow up on recommendations of external audits and (iv) competition, value for money and controls in procurement. Some of these issues need to be addressed urgently if revenues accruing from the prospective mineral boom are to translate into development spending. It has been observed that while much progress has been made in de jure public financial management reforms, there has not been much progress de facto. The financial operations of many units, including ministries, agencies and counties are not fully aligned with the provisions of the new PFM law. This compliance gap means that corruption still remains an issue, and the attendant risks thereto have inevitable effects on the use of public resources.

55. **There is also documentary evidence of off-budget expenditures which the Auditor General has referred to as illegal.** A typical example is the rent demanded by the legislature before approving mining concession contracts, which have been referred to as "lobbying fees". NOCAL, which is under the control of the executive, has also been accused of collecting rents during the allocation of oil concessions. According to Global Witness (a Civil Society Organization), "allocation of contracts has

[26] See Lofgren, H., S. Dessus and J. Hoffman (2011), "Strategic Policy Options for Liberia's Medium Term Growth and Development Strategy and Liberia Rising 2030", AFTP4, The World Bank, Washington D.C.

been perceived as not being transparent enough. NOCAL has failed to ensure that the country's Petroleum law is adhered to".

Political Absorptive Capacity

56. **Against observed common practice, where fiscal expansion is often associated with the election year in Sub Saharan countries, Liberia maintained a fiscal surplus of 0.2 percent of GDP in FY 2011.** However, increased Government revenue could generate additional pressures from public sector workers for increased wages and salaries. Without rapid progress in public financial management, anti-corruption, and accountability mechanisms, suspicions of fraud and corruption within Government will grow with public revenue, and could have destabilizing impact.

57. **Civil Society is not sufficiently strong and well organized to ensure transparency and accountability from government.** Paradoxically, Liberia was among the first countries in Africa to sign up to the Extractive Industry Transparency Initiative (EITI), which implied government's commitment to transparency in natural resource revenue management. The EITI secretariat has since not involved in the processes leading to the award of mining contracts to concessionaires. It has therefore minimal role in ensuring transparency in the award to contracts. According to the worldwide governance indicators, Liberia made some phenomenal progress on corruption control in 2008-50th percentile ranking- but was downgraded to less than 40th percentile ranking by end 2010.

IV. SIERRA LEONE

Mineral Activity Prospects

58. **Sierra Leone is well endowed with mineral resources, including diamonds, rutile bauxite and gold and Iron ore.** The 2009 discovery of oil off-shore of Sierra Leone has also put the country on the map as a potential future oil producer. Its rutile and Iron ore deposits are world class and Sierra Leone had been a major source of high quality rutile for the global market. Other identified minerals include platinum, chromite, lignite, clays, and base metals (copper, nickel, molybdenum, lead and zinc).

59. **The mineral sector in Sierra Leone is made up of three sub-sectors:** (a) large-scale production of diamonds (companies include Koidu Holdings Ltd. and African Minerals Ltd.); (b) large scale production of bulk minerals (Sierra Rutile Ltd., Sierra Minerals Ltd., London Mining Ltd and African Minerals Ltd); and (c) artisanal and small-scale production of diamonds, and to a much lesser extent gold. Artisanal production is mostly informal, smuggled, and direct fiscal revenue from this sub-sector is thus insignificant. In recent years,[27] through the reactivation of mines abandoned during the civil war, the mineral sector has been contributing about 20 percent of GDP and 90 percent of export revenue, employing 10-15 percent of the labour force directly and indirectly, and providing livelihood for over 300,000 people. Nonetheless, large scale mining operations are essentially foreign enclaves with little forward and backward linkages with the local economy.

60. In 2009 and 2010, the Government signed two large-scale mining agreements for iron ore development, the first with London Mining in Marampa and the second with African Minerals in Tonkolili. The commencement of these projects led to massive foreign direct investments in 2010 and 2011 (of above US$1 billion in total). Both commenced production in December 2011. Assuming the production plans of the two new iron ore mining projects, GDP, exports and tax revenue will increase considerably in the coming years. Indeed, the two projects could add US$1.15 billion to GDP in 2012, inducing a 50 percent GDP growth rate from 2011. Similarly, exports are projected to be multiplied by 4 in 2012 (from US$413 million in 2011 to US$1.65 billion in 2012), iron ore edging out diamonds as the largest source of export receipts. While running these projects at full capacity will entail a one-time upward shift in GDP and export levels, increase in fiscal revenue will be more progressive as mining companies will amortize rapidly their capital expenditure. Assuming full compliance with the fiscal and regulatory regimes, Government revenue from the iron ore sector could amount to $50 million in 2012 (up from US$4 million in 2011), going up to above US$550 million by 2015.

61. **Oil fields were found offshore in 2009 and 2010.** In 2001, the Petroleum Exploration and Production Act (PEPA) was introduced to encourage upstream oil and gas investment. In 2002, the country launched its first exploration bid round offering seven blocks, which covered a large proportion of the offshore acreage. Initially, limited interest was shown mainly because of a combination of high perceived risks and low oil prices. Four blocks were awarded by the end of 2003, and the remaining blocks were awarded in 2008 and 2010 respectively. Five agreements have been signed to date; their

[27] Following a World Bank Sector Review of mining in Sierra Leone in 2005, several donors (including DfID, EU, USAID, and UNDP) supported reforms in the legal, regulatory, fiscal, and institutional arrangements of mining. Over the past few years, Sierra Leone has passed some important laws and regulations and provided an enabling policy framework for the growth of the mining sector. These reforms led to a recovery of the sector, particularly diamond mining and rutile production from early to mid- 2000s, and more importantly, they opened potential for new development.

terms are largely consistent with the 2002 Model Agreement. In 2009 and 2010, two offshore, deepwater oil fields – Venus and Mercury, were discovered, but reserves have not yet been declared commercially viable and the production plan not yet approved. As such, it is unlikely that petroleum production could start before 2015.

Mineral Revenue Prospects

62. **Sierra Leone's capacity to collect revenue from the mining sector is low.** In recent years, Government revenues from the mining sector have been growing, but remain very modest. Even including items such as personal income tax and payroll tax (not usually counted as direct revenues from mining operations), revenues in 2010 from 78 companies and 319 registered individuals reached US$28 million, or 1.5 percent of GDP. Mining license fees and surface rents make up the largest segment of direct revenues, exceeded only by PAYE (tax on employment income) and withholding tax on subcontractors which do not fall directly on mining companies. The revenue pattern is explained by: (i) the limited number of companies engaged in production, as opposed to exploration; (ii) the low royalty on Sierra Rutile (0.5 percent), and rate on large-scale diamond production (5 percent before 2010, now 6 percent); and (iii) the significant losses carried forward for corporate income tax (CIT) purposes by major mining companies, amounting to about US$80 million by end-2010—together with some US$25 million in unused capital allowances. The National Revenue Authority (NRA) also estimates that customs duty forgone as a result of duty exemption for mining companies amounted to US$20 million in 2010 (1.1 percent of GDP, or just short of total NRA collections from mining companies).

63. **In 2012, the Government intends to reform its mining fiscal regime.** The Government intends to implement a resource rent tax (and IMF structural benchmark for December 2012) to benefit from upside profitability, and a capital gains tax to safeguard government revenue in case of sales of lucrative lease agreements to third parties in mining and oil.

64. **Poor Institutional and human resource capacity prevent effective revenue collection**. Whilst efforts are being made to put necessary structures in place that would enhance domestic revenue mobilization, both institutional and technical capacities of both the tax administration and the National Audit Commission need enhancement to be able to leave up to the challenge of mineral revenues collection. The weakness of the audit capacity of government is strikingly reflected in claims by NRA staff that detailed audits of the financial accounts of the mining firms have never been undertaken, despite provisions in all of the mining agreements. Weak revenue collection in the minerals sector can be attributed to two factors: (a) weak administrative capacity and complex forms of tax evasion by mining firms, and (b) tax exemptions running contrary to the Mines and Minerals Act of 2009 and the Income Tax Act of 2000.

65. **The weakness of the regulatory framework also limits resource mobilization from the mining sector.** In the last decade, attempts to direct the trade of alluvial diamonds into official channels were unsuccessful, and efforts to tighten controls and enforce foreign exchange surrender requirements resulted in increased smuggling and lower revenues. Formal companies also continue to express concerns regarding the regulatory framework, identifying the following risks as impediments to larger investments: a) restrictions on a company's ability to do business – obtaining exploration and mining rights, securing ready access to foreign exchange, being allowed to export directly, rather than through a state-owned market authority, and the risk of losing mining rights or legal title as a consequence of host government action; b) The ability to control costs and maintain competitiveness – the risk of

unilateral changes to the tax regime; the risk of price-control imposition or controls on inputs or output; the requirement that companies undertake marginal value-adding investments that may not be profitable; the requirement to carry out infrastructure, community or social investments not prescribed in the original investment agreement; and the risk of employment quotas set by the state. c) Ready access to foreign exchange to finance inputs and offshore payments for management fees, debt service, capital repayments and dividends.

66. **Notwithstanding progress made to-date, the institutional capacity to manage sector, negotiate agreements, enforce regulations, and monitor compliance remains weak.** The responsibilities for mineral sector management, negotiation, and monitoring remain not clearly defined between the Ministry of Mineral Resources (MMR), National Mineral Agency (NMA5– new entity expected to be formally established in 2011), the Mining Advisory Board (responsible for approving licenses), and the Strategy and Policy Unit (SPU) at the President's Office (responsible for negotiating investment agreements). The government has recently set up an inter-ministerial committee to handle all negotiations relating to the mining sector. The team comprises a member of the SPU, the Attorney General, the Director of Geology, the Director of Mines, the Law Officer's Department, and the Ministry of Finance and Economic Development. The need remains to clarify roles and responsibilities going forward in a sustainable manner.

67. **In the petroleum sector, reforms are still fairly new and evolving.** Upstream oil and gas activities are governed by the Petroleum Exploration and Production Act (PEPA) of 2011, which updates the PEPA 2001 to account for recent oil discoveries. The Act introduces a National Petroleum Directorate (NPD) as the regulatory authority, and also a National Petroleum Company (NPC) to hold state participation shares in commercial oil and gas ventures. Standard fiscal provisions, including a new resource rent tax will also be enacted but the details are yet to be finalized. A Model Petroleum Agreement implementing the terms of the Petroleum Act formed the basis of negotiation for the individual Petroleum Agreements with investors. Fiscal conditions are determined through the Petroleum Agreements and by the Income Tax Act of 2000. The Petroleum Resources Unit (PRU), in operation since 2004, was established as the regulator of the sector as per the terms of the Petroleum Act. During the licensing phase, PRU's role consisted mainly of providing technical input to the negotiating teams, but more recently, PRU has been attempting to move towards its long-term enforcement and monitoring role.[28]

Fiscal space, macroeconomic and public financial management capacity

68. **Sierra Leone's medium-term policy framework is guided by the Government's Agenda for Change** (PRSP II). The Government's key priority is to facilitate growth and poverty reduction while maintaining macroeconomic stability. Fiscal policy is anchored by keeping domestic financing at 1-2 percent of GDP a year, while monetary policy targets a return to single digit inflation. The key priorities are to increase fiscal space for developing basic infrastructure and improving social services, and support more effective private sector participation in the economy. In anticipation of a declining trend in donor financing, domestic revenue is expected to increase significantly, reflecting efficiency gains from the GST, improvement in tax administration, and higher revenue from mining.

[28] See Santley, D. (2011), "Sierra Leone: Management of Early Stage Petroleum Activities", World Bank, Washington D.C. for a discussion of current challenges and decisions to be made before first oil in Sierra Leone.

69. **Addressing Sierra Leone's infrastructure challenges will require a sustained expenditure of $258–478million per year**[29]. This is based on achieving an illustrative set of infrastructure targets, and considers only public infrastructure needs without taking into account the private infrastructure needs of the concessions associated with the mineral, forestry, and agriculture industries. Part of this objective could be attained through efficiency gains: about $66 million is being lost annually from power losses and under recovery of costs in roads and water.

70. **In recent years, Sierra Leone has been spending $134 million a year on infrastructure when all sources public and private, budget and off-budget are borne in mind**. About 70 percent of total infrastructure spending has been investment, and more than half has gone to the transport sector. Official development assistance (ODA) is by far the largest source of investment finance, followed by private investment; while domestically funded public investment has been lower.

71. **Comparing spending needs against existing spending leaves an annual funding gap of $59 to $278 million per year, mostly for water, power and transport**. In the face of it, the Government intends to develop a Public Investment Plan, to take effect in the preparation of the 2013 budget. The PIP would list priority projects to be executed, depending on resource availability.

72. **Expected large revenue from the mining sector could provide the "fiscal space" Sierra Leone needs to fund its priority programs without undermining the government's financial position or macroeconomic stability**. Moving away in 2011 from the large central bank financing that generated macroeconomic instability until 2010 – high inflation, hugely negative real interest rates and a depreciating currency, Sierra Leone could use its projected mineral revenue, if collected and managed efficiently, to finance its development plans. But this will need to be complemented with continued efforts to improve gross public savings (through strengthened tax collection and expenditure controls), improved debt management capacity, a sound exchange rate management to avoid excessive over evaluation, the development of stabilization mechanisms, and productive investments in non mineral tradable sectors.

73. **Domestic revenue performance is improving from a low base, but Government gross savings are still negative.** Government revenue over GDP improved from 11.5 percent in 2008 to 14.9 in 2011. Revenue growth has been helped both by increased mining activity and by the introduction of a goods and services tax (GST), in the form of a value-added tax, at the beginning of 2010. But Government revenue cannot yet cover current public expenditures. While revenue grew faster than current expenditure since 2008, continued negative gross public savings will limit the fiscal space which could be generated with higher mining revenue. Besides, the planned reduction in grants might further reduce Government's ability to finance its development plans.

74. **Some additional fiscal space could be generated through higher foreign borrowing, and provide some bridge financing before mineral revenue are being collected at full capacity.** A debt sustainability analysis conducted in October 2010 by the Bank and the Fund concluded that Sierra Leone's risk of debt distress remains moderate. The analysis found that external debt indicators would remain below the HIPC indicative thresholds throughout the projection period of 2010-30, except for the present value of debt-to-exports which temporarily breached its threshold in the early years. An update to the debt sustainability analysis conducted by the Government in November 2011, which conservatively incorporated only the first of the three planned phases of the African Minerals iron ore project, found that under the baseline scenario, the present value of debt-to-exports would decline from

[29] See V. Foster (2011), "Sierra Leone's Infrastructure: A Continental Perspective" Africa Infrastructure Country Diagnostic Report, World Bank, Washington DC.

90 percent in 2011 to 41 percent in 2012 and remain well below its threshold throughout the projection period.

75. **Sierra Leone is taking steps to improve its debt management capacity.** In light of the recent assessment of its debt management capacity and institutions,[30] the Government decided to update and modernize its legal framework. The Public Debt Management Bill was submitted to Parliament in October 2010 and enacted shortly thereafter. This legislation establishes a new Public Debt Management Division, in charge of debt management of the government debt, risk assessment of government guarantees and lending, and monitoring of borrowings by local councils and public enterprises. The Act also clearly articulates the issue of contingent liabilities and provides for appropriate government oversight and management of various debt instruments. The Act is being progressively implemented in parallel with a debt management reform and capacity building plan that was also prepared during this period.[31] This initiative should improve public resource management, reduce fiscal and macroeconomic risks and thereby provide a stronger basis for public investment going forward. A Medium Term Debt Strategy will be prepared in 2012.

76. **Monetary policy in 2012 is to remain appropriately restrained with the objective of bringing inflation down to the single digits by 2013**. This is to be achieved while maintaining adequate provision for expansion of credit to the private sector. After peaking at more than 50 percent of GDP in 2011 due to imports related to the investment phase of the iron ore projects, the current account deficit is forecast to settle at around 10 percent of GDP throughout 2012-14. The flexible exchange rate policy is to be maintained with intervention limited to absorption of foreign financed budgetary spending and to smoothing in response to short term volatility. Reserves are expected to remain adequate although reserve cover in months of imports declined from about 5 months of import cover in 2010, to under 3 months thereafter due to the ramp-up in imports related to the iron ore sector.

77. **The international iron ore market, like many commodity markets, is subject to considerable volatility**. This volatility risk is compounded by the fact that a small number of countries— China, India and South Korea—account for a large share of world demand for the commodity. On the face of it, The Mines and Minerals Act, (2009), does not provide for any stabilization mechanism, such as a Stabilization Fund (SF).

78. **Sierra Leone has built a fairly solid legal and regulatory framework for public financial management[32]; but weaknesses remain in many areas**. This includes lack of budget credibility, as evidenced by large compositional variances; weaknesses in expenditure controls, payroll in particular; uneven direction of resources to priority areas to support high quality expenditure outcomes; and imperfect revenue retention, as the Consolidated fund does not receive fees collected from oil exploration licenses. Moving forward, the Government intends to fully roll-out the IFMIS to decentralized units and develop performance based budgeting, systematically clean the civil service payroll, strengthen internal audits, and improve procurement practices across MDAs and local councils.

79. **In 2012, the Government started to draft a revenue management bill.** The bill, still at an early stage of development and consultation, includes provisions regarding (i) accounting of revenues from mineral activities to be collected and channeled into the Consolidated Fund, (ii) the establishment

[30] Sierra Leone: Debt Management Performance Assessment, World Bank, 2009.
[31] Government Debt Management Reform and Capacity Building Plan, Sierra Leone, December 2010.
[32] The key legal framework for PFM is embedded in the Government Budgeting and Accountability Act, 2005 and its related regulations, the Financial Management Regulations, 2005.

of a Natural Resource Fund (NRF) for stabilization purposes, and (iii) reporting mechanisms on revenue collection and use.

80. **Sierra Leone has been an Extractive Industries Transparency Initiative (EITI) candidate country since 2007**. After a difficult start, the first reconciliation report, covering mining, was produced in March 2010. The validation report submitted shortly afterwards recommends a number of improvements to the governance and management of the processes. The Government will implement the recommendations made in the validation report by the end of 2012, with the view to maintain its EITI candidacy status. The possibility to extend EITI principles to oil and gas is not yet considered.

Political Absorptive Capacity

81. **There are several important political risks which could prevent an effective developmental use of mineral revenues**.

82. **The first risk lies in the destabilization of SL institutions should officials be perceived as stealing the resource for the benefit of a few.** As discussed in previous paragraphs, administrative and regulatory loopholes and lack of capacity provide the opportunity – and thus suspicion of (i) poor tax and regulatory compliance, and (ii) collusion between officials and companies. Upon coming to office (in 2007), the All People's Congress government set up a task force to explore the weaknesses of revenue collection and broader regulation in the mining sector. The task force consisted of: two conveners from the Office of the President; the Minister of Mineral Resources (often represented by the Deputy Minister); the Minister of Finance and his representative, especially the NRA; the Attorney General and his representative; and representatives of civil society, the mineworkers union, chiefs and parliamentarians. The task force concluded that weak revenue performance was primarily the result of the highly problematic mining agreements. Existing mining agreements were all company-specific and, in the view of the task force: (i) provided extensive and excessive tax holidays, tax relief and customs duty exemptions; (ii) provided extensive deductions for capital allowances and exploration expenses; and (iii) Provide for unlimited loss carry forward, allowing each company to carry forward indefinitely, and deduct from taxable income in subsequent years, losses incurred in any one year.

83. **The outcome of this investigation led to the passage of a new act, the Mines and Minerals Act of 2009.** This new Act has been heralded by some as a significant break with the past, and an opportunity to usher in a much more effective regulatory and tax regime for the mining sector. While there have been unavoidable disagreements with respect to the content of the law, there is nonetheless broad agreement that, on paper, the new Act represents an important step forward. However, the primary challenges lies in fully and transparently implementing the provisions of the new Act, and the results so far, while a step in the right direction, have nonetheless been disappointing.

84. **The second risk lies in the myopic behavior of political parties, inclined to over-spend in election years.** The existence and cost of political business cycles in young African democracies is now well established and documented.[33] Incentives to over spend comes from the perceived cost of losing power (with no possibility to re-gain it afterwards, and losing it all in winner-takes-it all systems) and costs stem from the ex-post negative impact of overspending on macroeconomic stability and the quality of public expenditure. In Sierra Leone, recent trend in government expenditure shows

[33] Block, S. (1999) Political Business Cycles, Democratization and Economic Reforms: The Case of Africa, August, Tufts University, Medford.

increasing infrastructure spending. Though crucial for growth and development, such spending increases have been viewed by opposition parties as publically motivated rather than developmental oriented. As likely to heighten in the run up to national, parliamentary and local elections in 2012, and fueled by voters' expectations of forthcoming large windfall revenues from iron ore and potentially from oil, public expenditures (on and off budget) will need to be closely monitored by DPs and CSOs and fiscal transparency mechanisms improved.

ANNEX 1: TABLES

Table A.1: Estimated and Projected Mineral Depletion, 2006-15, (US$ million)

Central Estimate

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ghana										
Gold	382	639	845	1,238	1,999	2,499	3,469	3,328	2,997	2,595
Oil	0	0	0	0	0	1,046	1,458	1,587	1,713	1,691
Gas	0	0	0	0	0	0	0	219	221	219
Bauxite	7	7	5	4	4	4	4	4	4	4
Total	389	646	850	1,242	2,003	3,549	4,931	5,139	4,935	4,510
Liberia										
Iron ore	0	0	0	0	0	18	55	42	57	146
Gold	0	2	6	8	14	19	22	20	17	14
Total	0	2	6	8	14	37	77	62	74	160
Sierra Leone										
Bauxite	9	11	5	7	6	6	6	6	6	6
Iron ore	0	0	0	0	0	6	500	585	541	1,299
Gold	0	2	2	3	5	7	9	8	7	5
Total	9	13	8	10	11	19	514	599	553	1,310

Source: World Bank staff calculations.

Table A.2: Assumptions for Mineral Depletion Computation, 2011

	Ghana	Liberia	Sierra Leone
Crude oil			
Unit cost of extraction (US$/ton)	50	-	-
Output price (% of world price)	109	-	-
Years of extraction	20	-	-
Gold			
Unit cost of extraction (US$/ton)	370	368	368
Output price (% of world price)	100	100	100
Years of extraction	19	14	14
Iron Ore			
Unit cost of extraction (US$/ton)	-	62	43-50*
Output price (% of world price)	-	54	69-74*
Years of extraction	-	25	25

Source: World Bank staff calculations. Note: cost of extraction are inflated in proportion of MUV in 2012-15; (*) depending on the mining site.

Table A.3: Fiscal Frameworks, 2010-15, (% of GDP)

Fiscal Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
			Ghana			
Revenue	14.4%	17.5%	18.6%	18.7%	19.9%	20.3%
inc. from mineral resources	1.1%	2.9%	4.1%	4.6%	5.2%	5.3%
Expenditure	24.1%	23.8%	25.1%	23.6%	24.5%	24.8%
Deficit, excl grants	-9.7%	-6.38%	-6.5%	-4.9%	-4.6%	-4.4%
GDP, US$ millions	32,321	38,394	43,396	46,994	50,922	55,384
			Liberia			
Revenue	27.8%	28.8%	27.5%	27.8%	29.0%	22.0%
inc. from mineral resources	5.1%	3.8%	6.4%	5.1%	7.7%	7.6%
Expenditure	28.6%	32.2%	32.4%	34.0%	35.5%	28.1%
Deficit, excl grants	-0.7%	-3.3%	-4.8%	-6.2%	-6.5%	-6.2%
GDP, US$ millions	988	1161	1,366	1,524	1,950	2,822
			Sierra Leone			
Revenue	13.4%	13.6%	10.4%	11.2%	11.6%	17.3%
inc. from mineral resources	0.5%	0.7%	1.9%	2.3%	2.7%	10.8%
Expenditure	27.4%	25.4%	17.8%	16.8%	16.6%	22.4%
Deficit, excl grants	-14.0%	-11.8%	-7.4%	-5.6%	-5.0%	-5.0%
GDP, US$ millions	1,905	2,205	3,624	3,888	4,157	6,080

Source: World Bank staff calculations.

Table A.4: World Price Projections 2010-15

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Crude Oil (US$/bbl)	79.0	104.0	98.2	97.1	96.0	94.7
Gold (US$/oz)	1224.7	1568.3	1750.0	1600.0	1400.0	1200.0
Iron Ore (US$/mt fe)	145.9	167.8	150.0	135.0	120.0	110.0
MUV	112.9	122.9	117.4	118.4	119.4	120.2

Source: World Bank.