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► To cite this version:

Yannick Bouterige, Neerbewende Abdoul Rachid Pafadnam. The Extractive Industries Transparency Initiative (EITI): A mine of information to be exploited?. 2024. hal-04493418

HAL Id: hal-04493418

<https://hal.science/hal-04493418v1>

Preprint submitted on 7 Mar 2024

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The Extractive Industries Transparency Initiative (EITI): A mine of information to be exploited?

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Summary

While two-thirds of African countries can be considered resource-rich, taxation of the extractive sector is a challenge for these countries, which also need revenues to finance their development. An in-depth analysis of mining and petroleum rent sharing is therefore essential but is hindered by difficulties in accessing the necessary economic and fiscal data. The wealth of information published by the Extractive Industries Transparency Initiative (EITI) is certainly a response to this need for data. However, despite their obvious interest, the use of EITI data is severely limited by their lack of centralization and their low level of comparability between countries and even between years. In this context, the construction of a real transnational and pluri-annual EITI database, harmonized and easily usable, seems to be increasingly essential for providing all stakeholders with the information necessary to understand and analyze the African extractive sector.

* The authors thank the Centre d'Études et de Recherches sur le Développement International (CERDI) and the French Ministry of Europe and Foreign Affairs (MEAE) for their technical and financial support.

I. Introduction

1. The importance of the extractive sector for African countries

The extractive sector is an important component for many African economies. The continent contains 30% of the world's mineral reserves, 8% of oil reserves, and 7% of natural gas reserves (African Development Bank, 2016). Many African countries are thus considered to be rich in natural resources, which can be measured in different ways. The first indicator often used consists of evaluating the share of the extractive sector in total exports. According to the International Monetary Fund (IMF) criteria, a country can be considered resource-rich when this share is above 25% (Lundgren *et al.*, 2013) or even 20% depending on the report. According to our calculations based on data from the United Nations Conference on Trade and Development (UNCTAD), in 2019, two-thirds of the continent's countries are resource-rich at the 25% threshold (37 countries out of 54¹).

The number of resource-rich African countries has been increasing over the past 25 years. This number has increased by 60% between 1995 and 2019, going from 23 to 37 countries. Some states have been major resource exporters for many decades, such as Angola, Algeria, Botswana, Nigeria, Libya, Zambia, the Republic of Congo and Gabon. Other states have taken great advantage of the third commodity supercycle, marked by rising commodity prices from the early 2000s, to increase their extractive exports. These include Mali, Mozambique, and Rwanda (whose resource exports have exceeded the 25% threshold since 2000), Tanzania (since 2001), Zimbabwe (2002), Chad (2004), Benin (2005), Burkina Faso (2008), Madagascar and South Sudan (2012). The number of resource-rich countries stabilized around at 37 in 2012, a year in which many commodity prices reached very high levels.

African countries export mainly minerals, including gold, diamonds, copper, and iron. Between 2016 and 2020, minerals represent the majority of extractive sector exports in nearly two-thirds of the continent's resource-rich countries (23 of 36 countries). Gold is the largest exported mineral. Historically, South Africa was the continent's largest gold exporter, but its production is declining. Estimated at 605 tons in 1990, it dropped to 428 tons in 2000, 191 in 2010, and only 96 in 2020 (World Bank, 2021). South Africa has now been surpassed by Ghana, which has become the continent's leading exporter since 2017, with a production of 125 tons in 2020. Over the past two decades, other new gold producers have emerged, including Burkina Faso (58 tons in 2020), Tanzania (56 tons) and Mali (49 tons). Other minerals, such as diamonds and bauxite, may also be important locally.

Some African countries depend on hydrocarbons: oil and gas. Between 2016 and 2020, hydrocarbons dominate extractive sector exports in just over one-third of the continent's resource-rich countries (13 of 36 countries). Nigeria is the largest oil producer in Africa, with an estimated production of 1.8 million barrels per day in 2020 (World Bank, 2021). Next come Algeria and Angola, each producing 1.3 million barrels per day, followed by Libya and Egypt. Oil resources are also very important for sub-Saharan countries such as the Republic of Congo, Gabon, Equatorial Guinea, South Sudan, and Cameroon. However, African oil production declined significantly in 2020. It decreased by 18.7%, compared with 7.2% for world production, due, of course, to the reduction in demand caused by the Covid-19 pandemic, but also to the political crisis in Libya.

Some African countries benefit from significant extractive rents. In addition to the export criterion, a second indicator often used to measure a country's natural resource wealth is extractive rents. Extractive rents are calculated as the difference between the unit price and cost of the

¹ The value of extractive sector exports was calculated from UNCTADstat data, using Standard International Trade Classification categories 27, 28, 3, 667, 68, and 971, following the same methodology as Oxford Policy Management (Haglund, 2011) and McKinsey Global Institute (Dobbs *et al.*, 2013).

resource, multiplied by the total volume extracted (Collier and Hoeffler, 2009). According to the McKinsey Global Institute criteria (Dobbs *et al.*, 2013), a country can be considered resource-rich when the share of extractive rents is more than 10% of its gross domestic product (GDP). According to World Bank data, in 2019, nearly a quarter of African countries are resource-rich when considering this indicator (12 among 54 countries)²². The rent criteria therefore appear to be more restrictive than the export criteria (which highlighted 36 resource-rich countries). Countries for which extractive rents contribute the most to GDP are the Republic of Congo (47.9%), Libya (44.6%), Equatorial Guinea (30.9%), Angola (26.2%), Chad (21.1%) and Gabon (20.9%). All these countries are oil producers.

Several African countries are also fiscally dependent on fiscal revenues from their natural resources. Beyond the exports and rents criteria, a third relevant indicator for measuring a country's fiscal dependence is the extractive revenues received by the State. According to the IMF (Lundgren *et al.*, 2013) and McKinsey Global Institute (Dobbs *et al.*, 2013) criteria, a country can be considered fiscally dependent when the share of extractive revenues represents more than 20% of its total government revenues. The limit of this indicator, however, is that it requires data that is more difficult to obtain. According to IMF estimates, 14 countries in Africa are fiscally dependent on their extractive sector over the period 2006 to 2010 (Dobbs *et al.*, 2013), including 10 in Sub-Saharan Africa over the period 2005 to 2010 (Lundgren *et al.*, 2013). These are Equatorial Guinea, the Republic of Congo, Angola, Nigeria, Chad, Gabon, Botswana, Cameroon, the Democratic Republic of Congo (DRC), and Guinea, respectively.

2. The challenges posed by the extractive sector for resource-rich countries

African countries need resources to finance their development. The "Addis Ababa Action Agenda" (UN, 2015) emphasizes, among other things, the need to increase domestic resource mobilization. This agenda was endorsed by the UN General Assembly on July 27, 2015, following the Third International Conference on Financing for Development, held in Addis Ababa from July 13-16, 2015. In its 22nd paragraph, it states that "significant additional domestic public resources, supplemented by international assistance as appropriate, will be critical to realizing sustainable development." This mobilization must include improved revenue administration, "modernized, progressive tax systems, improved tax policy, and more efficient tax collection." In addition, the "fairness, transparency, efficiency, and effectiveness" of taxation must also be improved.

The exploitation of extractive resources can increase domestic resource mobilization but represents a major challenge for resource-rich African countries. Indeed, far from being a blessing, natural resources can paradoxically be a curse, with resource-rich countries experiencing lower rates of economic growth than those less endowed with resources (Sachs and Warner, 1995). Economic theory suggests three explanations for this curse. The first is the "Dutch disease", in which the emergence of the extractive sector penalizes the rest of the economy: it leads to an appreciation of the exchange rate at the expense of the competitiveness of other sectors (Corden and Neary, 1982). The second explanation relies on the poor quality of institutions and governance problems. These limit the contribution of the extractive sector to economic growth (Mehlum *et al.*, 2006) and encourage corruption (Arezki and Brückner, 2011). The third cause is conflicts (Collier and Hoeffler, 2004). The presence of natural resources feeds covetousness, and when these resources are monopolized by armed groups, they are likely to finance civil wars and terrorism.

²² The share of extractive rents in GDP comes from the World Bank's World Development Indicators (WDI) database, following the same methodology as the McKinsey Global Institute (Dobbs *et al.*, 2013). Extractive rents consist of profits from minerals, oil, natural gas, coal, and forestry resources.

Furthermore, the sector’s specificities justify the appropriate taxation of extractive resources.

First, in the majority of countries, the substances present in the soil and subsoil, including in territorial waters, are by law the property of the State and; therefore; belong to the community. The authorities only concede the exploitation to companies through mining rights. Fair taxation is therefore necessary in exchange for the exploitation of a public resource by a private company. Second, mining and petroleum resources are non-renewable, which means that they must be taxed at their fair value as soon as they leave the ground, before they leave the national territory. The risk is that they will be exported, making it impossible for the producing country to tax them in the future, in contrast, for example, to agricultural commodities, which are renewable and therefore produced and taxed every year. In the non-renewable extractive sector, once the oil is consumed or the ore is exported, it is no longer possible to tax the resource, whereas in the renewable agricultural sector, if taxation is judged insufficient over a period, it can always be adjusted upwards at the next harvest. In addition, large-scale extractive projects are likely to generate rent, i.e. a super profit, when the price of raw materials greatly exceeds production costs.

The taxation of large-scale extractive projects is also justified by their low contribution to local and national economic development.

Despite the bad reputation of artisanal mines (accidents, child labor, environmental problems), they often contribute much more to the economic fabric of the country than industrial mining. A recent study in Burkina Faso, for example, shows that artisanal mining stimulates local household consumption³, which is not the case for industrial mining (Bazillier and Girard, 2020). Although they can make a significant contribution to national value-added, major extractive projects interact too little with firms in the rest of the economy: most inputs and equipment are imported, while all production is exported. The possibilities for local development are, therefore, very limited. This is why many movements aim to encourage extractive companies to create “local content”, particularly by employing and training national labor, as well as building local infrastructure. In addition, some resource-rich countries are failing to diversify their economies sufficiently. It is, therefore, necessary that large-scale industrial extractive projects be fairly taxed in order to contribute to the State budget and, thus, to the economic development of the country.

3. The question of a fair sharing of the extractive rent

The taxation of the industrial extractive sector, therefore, raises the question of the fair sharing of the mining and petroleum rent.

Beyond the national (macro-economic) level, this is, in reality, a question that must be asked for each extractive project (on a micro-economic scale). Indeed, each resource deposit is unique, given the substance’s nature, quantity, grade, geological conditions, production costs, etc. The calculation of the rent must, therefore, be carried out for each project individually, based on the economic data (revenue, production costs) of a mine or petroleum field. Economic rent refers to “the excess of revenues overall costs of production, including those of discovery and development, as well as the normal return to capital” (IMF, 2012). It is, therefore, a supranormal profit, as it exceeds the normal expected return on capital. Estimated over the project’s lifetime, the rent is calculated as the discounted sum of net cash flows before taxes. It is this rent that should be shared between the State and the investor.

The average effective tax rate (AETR) of an extractive project is then the percentage of the economic rent that goes to the State.

The AETR is a key indicator because it summarizes the global tax burden on an extractive project based on its revenues, costs and applicable tax system over its entire lifetime. It is simply calculated as the discounted sum of all government taxes divided by the

³ A 1% increase in the price of gold leads to a 0.12% increase in household consumption (Bazillier and Girard, 2020).

value of the rent. Measuring the AETR, therefore, requires the ability to calculate every levy that applies to a project. These may be fiscal levies (mining royalties, corporate income tax, withholding taxes, etc.) or parafiscal levies (dividends from the State's participation in the firm's capital). In addition to the economic data required for evaluating the rent, measuring AETR, therefore, also requires access to tax data for each levy (tax bases and rates). From a strictly theoretical point of view, it would be possible to tax up to 100% of the rent. However, in practice, this level of AETR may be too high to attract investors in an extractive sector that is characterized by a high level of risk. Rent sharing is, therefore, generally considered fair when the AETR is around 50% in the mining sector and slightly above 80% in the petroleum sector.

The evaluation of the ATER is, however, only an estimate that can be made ex-ante based on available data, so it presents some margin of uncertainty. Several parameters, which unfortunately cannot be known with complete reliability before the launch of the project, are indeed decisive in the calculation of the AETR. The greatest risks are related to the economic data presented in the feasibility study. For example, production costs may be higher than expected, given the nature of the soil. The quantity of ore or hydrocarbons may not correspond to the anticipated volumes. The price of raw materials is very volatile, and the selling price of production may, therefore, fluctuate significantly over the entire life of the project. At the same time, tax data may also change with changes in legislation and regulations. For this reason, extractive companies generally wish to ensure that they limit this risk by including stability clauses in their establishment agreement in order to fix the tax system that will apply to them. However, there is considerable uncertainty about the amount of taxes that will have to be paid.

Designing an appropriate tax system is therefore essential to tax the extractive sector appropriately despite the inherent uncertainty. Although it is difficult to talk about an optimal tax system, it is at least possible to define a fair tax system, of which several major principles can be highlighted. Progressivity, first of all, is fundamental, even if it is rarely achieved. A tax system, taken as a whole, is progressive if the level of the AETR rises as rents increase. This progressivity is, in fact, to the advantage of both parties, especially in the extractive sector, in order to ensure, on the one hand, that the company is taxed very little if the deposit is unprofitable and, on the other hand, that the State receives significant revenues if the project is very profitable. In practice, very few mining or petroleum tax systems are progressive, but it is important to try to limit their regressivity at least. The principle of neutrality is also relevant to ensure that taxation does not change the behavior of economic agents and does not influence their decisions. The principle of tax stability can also be helpful in providing confidence to investors and allowing them to project themselves into the future. Similarly, the transparency and simplicity of the tax system are objectives to be pursued.

However, an ex-post tax gap may exist, notably due to possible tax optimization strategies by mining and petroleum companies. The concept of "tax gap" refers to the difference between the taxes that should theoretically be paid if taxpayers fulfilled all their tax obligations and the taxes that are effectively collected by the government. Some tax gaps can be explained simply by unintentional errors made by taxpayers or even by a lack of awareness of some of their reporting and payment obligations. Other tax gaps may be voluntary and result either from attempts at tax evasion (illegal) or from tax optimization strategies (legal or at the limit of legality). Large-scale industrial extractive projects are particularly vulnerable to tax optimization strategies (undercapitalization, transfer pricing manipulation, etc.) because they are most often owned by large multinational groups that have the legal and financial resources to use the tax laws of each country to their advantage. In fine, the effective sharing of the extractive rent, i.e., the real level of the AETR, depends on three main variables: the economic conditions of the project, which are a source of uncertainty and from which the value of the rent is derived; the fiscal conditions of the project, resulting from the legislation, regulations and the establishment agreement, from which the amount of fiscal and parafiscal levies

is derived; and the behavior of private operators and their more or less aggressive tax optimization strategies.

4. The need for data to analyze the extractive sector

Through rent sharing (AETR) and the tax gap, the in-depth analysis of the extractive sector, which is carried out at the level of each mining or petroleum project, requires access to a large quantity of information, both fiscal and economic. However, this information is far from always being readily available. Some of this data comes from public sources (legal texts published in the official journal, reports from the Ministries of Economy and Finance, Ministries of Energy, Mines and Hydrocarbons), some comes from private sources (feasibility studies, reports from operating companies) and some may remain confidential (internal documents). In addition, the information available is too often not centralized: given the quantity of data needed to fully understand an extractive project, collecting it can be a huge task, especially when it is not formatted for rapid analysis. However, the need for data is apparent for many actors, both within public administrations and in civil society and the scientific community. Facilitating access to tax and economic data on projects is, therefore, an important issue for improving transparency and governance in the extractive sector.

In terms of tax data, the analysis of each extractive project requires knowledge of the entire tax system. This one is made up of taxes specific to the sector (fees, bonuses, surface fees, ad valorem royalties, production sharing), which are described in the sectoral legislation and regulations (mining act, petroleum, régulations, standard agreements), to which are added general taxes (corporate income tax, minimum tax, withholding taxes) which are described in tax legislation and regulations (income tax act, finance acts) but may be subject to sector-specific derogations (exemptions, deductions, reduced rates). The extractive sector is also characterized by the signing of establishment agreements between the investor and the State. These agreements are negotiated by both parties and may contain tax clauses that may derogate from the laws and regulations in force. In addition, these agreements often include stability clauses that freeze the applicable tax system for a long period of time. Consequently, each extractive project is likely to have its own tax system, which may be decades old and may differ significantly from those of other extractive projects in the territory. Having access to all legal documents and their history over the life of the project is, therefore, essential.

Some of this tax data is available and easily accessible, notably via the Ferdi and Resource Contracts websites. First of all, concerning the legislation and regulations in force, the public administrations of each country generally make them available on their web platforms (Ministries of Economy and Finance, National Revenue Authority, Ministries of Energy, Mines and Hydrocarbons, General Secretariat of the Government). In addition, Ferdi offers an innovative database on the taxation of mining industries⁴, which traces the precise evolution of the tax systems legally applicable to industrial gold mines in 22 sub-Saharan African countries over a long period going back to the 1980s. Secondly, with regard to establishment agreements, an increasing number of countries are providing for them to be published. Old contracts may remain confidential, but new ones are

⁴ The database on the taxation of mining industries, proposed by the Ferdi, in partnership with the Cerdi and the ICTD, with the support of the MEAE and the École Normale Supérieure de Lyon (ENS), is accessible at the following address: <https://fiscalite-miniére.ferdi.fr/>.

frequently accessible. Resource Contracts offers a database of mining and petroleum agreements⁵, which covers 98 countries and contains over 2,800 documents.

In terms of economic data, the analysis of the extractive sector in general and of each project in particular requires access to detailed data, both at the macro and micro levels. On a global scale, it is important to be able to look at a country as a whole and compare it to others in terms of production, exports, value-added, budgetary revenues and employment. At the individual level, it would be beneficial to have all the necessary information for a global comprehension of each major mining or petroleum project, and this over their entire lifetime. This would involve being able to precisely retrace the annual activity of a project since its inception in terms of production, exports, costs, taxes or employment. Only such disaggregated data can be used to calculate the project's rent, AETR, and tax gap. It requires the collection and analysis of numerous company documents, such as feasibility studies, accounting records, and annual reports. A lot of other information is also extremely useful to understand a project, such as the share capital amount, the exact identification of the shareholders and their nationality, the area and duration of the exploitation right, etc.

These economic data are far more difficult to obtain at the micro level than at the macro level. Concerning macro data, there are various initiatives and international organizations that publish information on the extractive sector. For example, the United Nations Conference on Trade and Development (UNCTAD) provides export values⁶, including those disaggregated by commodity. The World Bank also provides an indicator of rents from each resource (minerals, oil, gas, coal, forests)⁷, as well as historical commodity prices⁸. Information such as production volumes and tax revenues, however, is less easy to obtain. For microdata, on the other hand, very few databases exist. An interesting initiative is that of the Natural Resource Governance Institute (NRGI), through Resource Projects⁹, whose web platform collects payments from mining, oil, and gas companies. It covers 155 countries, including 49 African countries, but is limited in time, never going back beyond 2014. At both the macro and micro levels, one source of data appears promising: the EITI.

⁵ The Resource Contracts database, developed by the World Bank, the Natural Resource Governance Institute (NRGI) and the Columbia Center on Sustainable Investment (CCSI), is available at: <https://resourcecontracts.org/>.

⁶ The export database, provided by UNCTAD, covers 52 African countries over the period 1995-2020. It is available at the following address: <https://unctadstat.unctad.org/>

⁷ The rent indicator, proposed by the World Bank, is calculated as “the difference between the value of production of a resource stock at world prices and total production costs” as a percentage of GDP. It is available for 53 African countries over the period 1970-2019. It is available on the World Development Indicators (WDI) database: <https://donnees.banquemondiale.org/indicateur>

⁸ The commodity price history provided by the World Bank covers the period 1960-2021. It is available at the following address: <https://www.worldbank.org/en/research/commodity-markets>

⁹ The Mining and Oil and Gas Company Payment Database, called Resource Projects, developed by NRGI, is available at: <https://resourceprojects.org/>

5. The Extractive Industries Transparency Initiative (EITI)

The Extractive Industries Transparency Initiative (EITI) is probably the most advanced international organization in the promotion of better governance in the extractive sector. It was created in 2003 in London at the initiative of the British government, notably by Prime Minister Tony Blair. It then rapidly expanded, thanks to multiple supports from the World Bank, the IMF, the United Nations, the G8, and the G20 (Sovacool *et al.*, 2016; David-Barrett and Okamura, 2016; Rustad *et al.*, 2017). In 2007, it established its headquarters in Oslo with the support of the Norwegian government. It now counts 57 member countries¹⁰, including 29 in Africa. The EITI aims to document legal and fiscal reforms, strengthen tax collection and governance systems to improve trust between policymakers and citizens in the management of extractive revenues, enlighten public debate, retrace the allocation of revenues to communities, and promote better extractive revenue collection (EITI Standard, 2019). The objective is to combat the natural resource curse by improving transparency, which reduces opportunities for corruption (Papyrakis *et al.*, 2017) and increases the accountability of leaders to their people. Transparency also improves the investment climate (Malden, 2017).

The EITI is based on Principles, Criteria, and Standards that have been progressively extended.

At its creation in June 2003, at the Lancaster House Conference, the EITI's "12 Principles" were established "to increase transparency over payments and revenues in the extractives sector" (EITI Source Book, 2005). Two years later, 15 countries had already committed to the implementation of the initiative. During this pilot phase, "the need for clear guidance for implementation" became apparent. In March 2005, at the second EITI Global Conference, which took place again in London, "6 Criteria" were added to the pre-existing Principles (EITI Source Book, 2005). Providing further precision, the first criterion affirms that payments and revenues must be published regularly. The second and third criteria require that payments and revenues be reconciled¹¹ and a "credible independent audit". The fourth clarifies that "this approach is extended to all enterprises including state-owned enterprises". The fifth emphasizes the importance of active participation in civil society. Finally, in September 2009, the EITI "Rules" are a synthesis of all the Criteria and Principles, to which are added the Validation Guide for annual reports. The creation of a multi-stakeholder group also appears. Also designated as a tripartite group, it includes both government, extractive companies, and civil society members.

¹⁰ The list of 57 EITI member countries is available at: <https://eiti.org/countries>

¹¹ Reconciliation consists of comparing the information published by companies on the one hand, and by public administrations on the other, to identify discrepancies and, if possible, justify these discrepancies. In practice, member states are required to define the scope of reporting in order to produce a "timely, comprehensive, reliable and comprehensible" report. This scope must include all payments judged "significant" and define the list of companies and government entities that "should be required to report" (Guidance Note 9, for establishing the scope of EITI reporting, May 26, 2016). However, sometimes, not all companies or administrations fulfill their reporting obligations.

Box 1: The 12 EITI Principles

1. We share a belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts.
2. We affirm that management of natural resource wealth for the benefit of a country's citizens is in the domain of sovereign governments to be exercised in the interests of their national development.
3. We recognise that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognise that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognise that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognise the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business.
10. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
11. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country.
12. In seeking solutions, we believe that all stakeholders have important and relevant contributions to make – including governments and their agencies, extractive industry companies, service companies, multilateral organisations, financial organisations, investors and non-governmental organisations.

Source: EITI Source Book, 2005.

Box 2: The 6 EITI Criteria

1. Regular publication of all material oil, gas and mining payments by companies to governments (“payments”) and all material revenues received by governments from oil, gas and mining companies (“revenues”) to a wide audience in a publicly accessible, comprehensive and comprehensible manner.
2. Where such audits do not already exist, payments and revenues are the subject of a credible, independent audit, applying international auditing standards.
3. Payments and revenues are reconciled by a credible, independent administrator, applying international auditing standards and with publication of the administrator’s opinion regarding that reconciliation including discrepancies, should any be identified.
4. This approach is extended to all companies including state-owned enterprises.
5. Civil society is actively engaged as a participant in the design, monitoring and evaluation of this process and contributes towards public debate.
6. A public, financially sustainable work plan for all the above is developed by the host government, with assistance from the international financial institutions where required, including measurable targets, a timetable for implementation, and an assessment of potential capacity constraints.

Source: EITI Source Book, 2005.

Since 2013, the EITI has adopted a “Standard”, revised in 2016 and 2019, which is based on very detailed “Requirements”, which include the publication of data. The adoption of the Standard represents a major innovation since it now covers the entire value chain of the extractive sector: the granting of licenses and contracts, exploration and production, revenue collection, revenue allocation, and social and economic expenditure (EITI Standard, 2019). The Standard encourages or requires, depending on the case, the regular disclosure of a wide range of information, both economic and fiscal, that is highly relevant to the analysis of the extractive sector. The first is fiscal data via the “legal and institutional framework” (requirement 2), including a “summary description of the fiscal regime” (2.1). Member countries, which were previously only encouraged to publish all their contracts and licenses, are now even obliged to do so, from January 1, 2021, for new “contracts and licenses that are granted, entered into or amended” (2.4). This also concerns economic data, such as production (3.2), exports (3.3), budget revenues (4.1), value added (6.3.a) and employment (6.3.d). The EITI, through documents produced by member countries in the application of its Standard, thus appears to be an extremely valuable mine of information for all actors interested in the extractive sector.

Box 3: The 7 Key Requirements of the 2019 EITI Standard

1. Oversight by the multi-stakeholder group.

The EITI requires effective multi-stakeholder oversight, including a functioning multi-stakeholder group that involves the government, companies, and the full, independent, active and effective participation of civil society. The key requirements related to multi-stakeholder oversight include: (1.1) government commitment; (1.2) company engagement; (1.3) civil society engagement; (1.4) the establishment and functioning of a multi-stakeholder group; and (1.5) an agreed work plan with clear objectives for EITI implementation and a timetable that is aligned with the deadlines established by the EITI Board.

2. Legal and institutional framework, including allocation of contracts and licenses.

The EITI requires disclosures on how the extractive sector is managed, enabling stakeholders to understand the laws and procedures for the award of exploration and production rights, the legal, regulatory and contractual frameworks that apply to the extractive sector, and the institutional responsibilities of the State in managing the sector. The EITI Requirements related to a transparent legal framework and awarding of extractive industry rights include: (2.1) legal framework and fiscal regime; (2.2) contract and license allocations; (2.3) register of licenses; (2.4) contracts; (2.5) beneficial ownership; and (2.6) state participation in the extractive sector.

3. Exploration and production.

The EITI requires disclosures of information related to exploration and production, enabling stakeholders to understand the potential of the sector. The EITI Requirements related to a transparency in exploration and production activities include: (3.1) information about exploration activities; (3.2) production data; and (3.3) export data.

4. Revenue collection.

An understanding of company payments and government revenues can inform public debate about the governance of the extractive industries. The EITI requires comprehensive disclosure of company payments and government revenues from the extractive industries. The EITI Requirements related to revenue collection include: (4.1) comprehensive disclosure of taxes and revenues; (4.2) sale of the State's share of production or other revenues collected in kind; (4.3) infrastructure provisions and barter arrangements; (4.4) transportation revenues; (4.5) SOE transactions; (4.6) subnational payments; (4.7) level of disaggregation; (4.8) data timeliness; and (4.9) data quality of the disclosures.

5. Revenue allocations.

The EITI requires disclosures of information related to revenue allocations, enabling stakeholders to understand how revenues are recorded in the national and, where applicable, subnational budgets, as well as track social expenditures by companies. The EITI Requirements related to revenue allocations include: (5.1) distribution of revenues; (5.2) subnational transfers; and (5.3) revenue management and expenditures.

6. Social and economic spending.

The EITI encourages disclosures of information related to revenue management and expenditures, helping stakeholders to assess whether the extractive sector is leading to the desirable social and economic and environmental impacts and outcomes. The EITI Requirements related to revenue allocations include: (6.1) social and environmental expenditures by companies; (6.2) SOE quasi-fiscal expenditures; (6.3) an overview of the contribution of the extractive sector to the economy; and (6.4) the environmental impact of extractive activities.

7. Outcomes and impact.

Regular disclosure of extractive industry data is of little practical use without public awareness, understanding of what the figures mean, and public debate about how resource revenues can be used effectively. The EITI Requirements related to outcomes and impact seek to ensure that stakeholders are engaged in dialogue about natural resource revenue management. EITI disclosures lead to the fulfilment of the EITI Principles by contributing to wider public debate. It is also vital that lessons learnt during implementation are acted upon, that recommendations from EITI implementations are considered and acted on where appropriate and that EITI implementation is on a stable, sustainable footing.

Source: EITI Standard, 2019.

The wealth of information published by the EITI is a response to the need for economic data, but it is nonetheless confronted by the difficulty of using it easily and quickly due to the lack of centralization. Data is disclosed in the form of a country report, usually annual, in PDF format, which is now frequently several hundred pages long. This format is totally legitimate and absolutely necessary. It has the great advantage of bringing together all the information in a single document with necessary explanations. But it also inevitably has its limitations. First of all, because of the length of the reports, it is not always easy to find precise information. More importantly, the format of the annual country report greatly complicates spatial (between countries) and temporal (over the history of the same country) comparisons since it involves tedious searches in each country's report for each year. Moreover, the methodology may differ from one country to another, and even from one year to another for the same country, depending in particular on the independent director chosen. In addition to the annual reports, there is an annual country Excel file¹², but this one is far from including all the data in the reports. Moreover, it poses exactly the same difficulties in terms of spatial and temporal comparisons. Consequently, the lack of centralization of national EITI data is certainly a significant and regrettable obstacle to its use and dissemination to the public. The solution undoubtedly lies in the construction of a real EITI database.

¹² The PDF reports and Excel files for each country for each available year are collected on the EITI Google Drive and can be accessed at:
<https://drive.google.com/drive/folders/0B9BI74fkjArzcWtDMDE3eUtYajA?resourcekey=0-Rbu33xdtrCHcS7i9jIY5tA>

II. An EITI database to analyze the extractive sector

In order to make the information provided by the EITI easily exploitable, it is necessary to organize it in the form of a real database. Ideally, this centralization of data should exist at the international level, at least for the main information. The idea would be to be able to propose, in addition to the reports, the essential data already organized in the form of one or more databases, directly and easily exploitable by all actors. This database would be a compilation of data from all countries, explicitly presented by variable and for each available year. It would take the form of a single spreadsheet file, such as Excel or any other commonly used application. This approach would be fully in line with the EITI's ambition to enable « users to focus on analyzing and responding to information, rather than just collecting and verifying it » (Foreword to the EITI Standard, 2019). Given the sheer volume of information involved, it is clear that the process should start with the compilation of essential information, which can then be progressively expanded. This new step of creating an EITI database is becoming increasingly necessary.

The construction of an EITI database that is both transnational and pluri-annual, however, represents a challenge, particularly in terms of the comparability of data from the different EITI reports. This work leads to several risks. Besides the large quantity of data to be processed and the enormous work involved, the first difficulty concerns the interpretation of the figures, which is unfortunately not always evident, even after a careful analysis of the reports. The second complexity concerns the level of disaggregation of information, which can vary from one country to another and even from one year to another. Disaggregation is not the same depending on the size of the extractive sector considered (mining, oil, and/or gas), the mode of exploitation (industrial or artisanal), the exact name of each tax or even of each administration. The third issue is the organization of the data, whose formatting must be adapted to the users' needs. Simple and powerful, a database conforming to the relational model would undoubtedly be the most relevant to allow an understanding of the data by an individual as well as by a program. Finally, the fourth and most important challenge is, of course, the overall comparability of data between reports. Despite the common EITI Standard, each country writes its report independently and with its own methodology. This methodology evolves over time, not only because the EITI requirements have developed progressively, but also because the work teams improve from year to year. The latest reports published are generally the best. But beyond the quality of the information, there are important practical problems in terms of spatial and temporal comparisons: the exchange rate between currencies, the taking into account of inflation, the different units used (ounce measurements, dry tons or wet tons, gas measurement units, etc.). The entire construction of the database must be designed to allow for the best possible comparability.

In order to ensure the feasibility of such an EITI database and especially to test the comparability of the data, Ferdi carried out a comparative study on a sample of 8 countries, thanks to support from the French Ministry of Europe and Foreign Affairs (MEAE). The study covers 7 West African countries: Burkina Faso, Cote d'Ivoire, Guinea, Mali, Niger, Liberia, Sierra Leone, and one East African country: Madagascar. It thus includes 6 French-speaking countries and 2 English-speaking countries, chosen mainly for the great diversity of minerals they produce. The time dimension covers, on average, the last 4 years for which EITI reports are available. It most often extends from 2016 to 2019, although it may vary depending on the indicator considered and the country. The latest report available for Madagascar is for 2018. In addition, as Niger left the EITI in October 2017, the last report stopped with 2014 data, before the country rejoined the organization in February 2020. The new 2019 report, recently published in November 2021, was not taken into account. The goal is to have a small but sufficiently diverse initial sample to test the feasibility of such a database and identify potential problems.

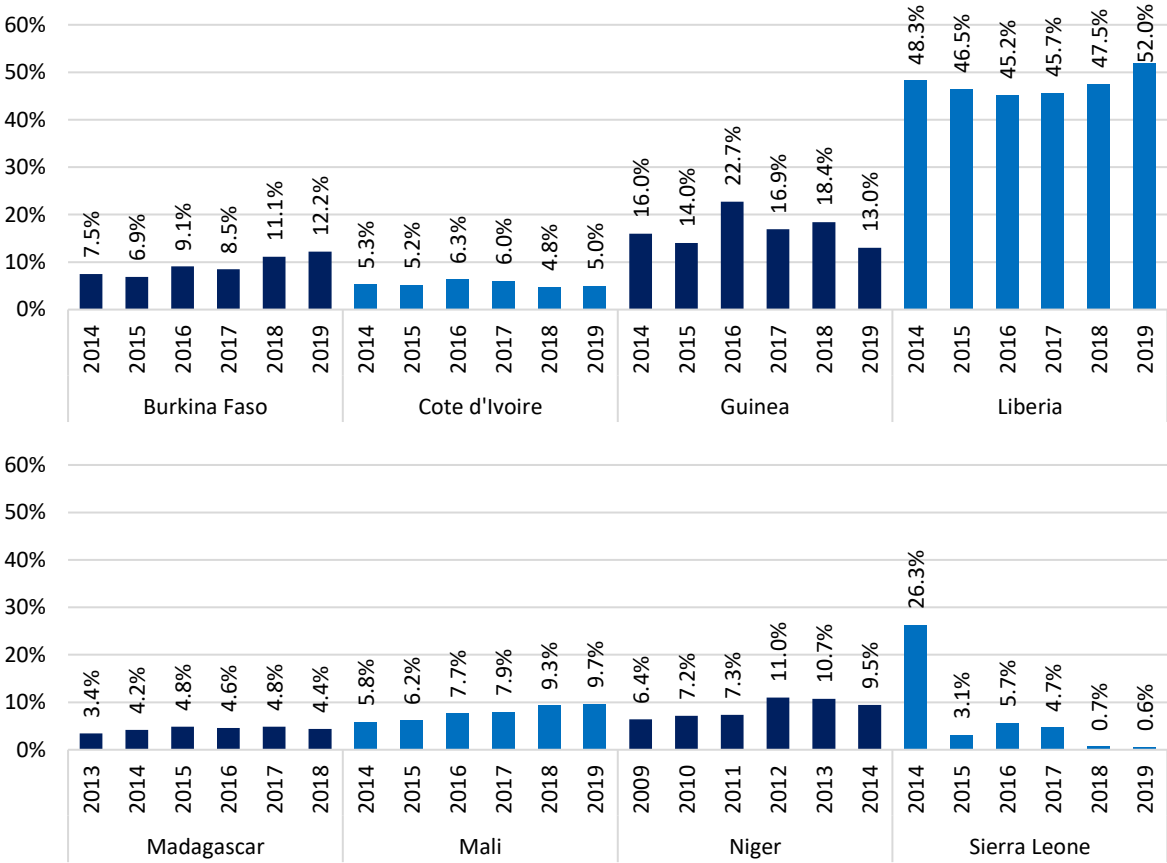
Table 1: Sample description.

Country	EITI History	Reports examined
Burkina Faso	Commitment: July 2007 Validated application: May 2009 Compliance: February 2013	2016-2019
Cote d'Ivoire	Commitment: May 2007 Validated application: May 2008 Compliance: May 2013	2016-2019
Guinea	Commitment: April 2005 Validated application: September 2007 Voluntary suspension: December 2009 Suspension lifted: March 2011 Compliance: July 2014	2016-2019
Mali	Commitment: August 2006 Validated application: September 2007 Compliance: August 2011	2016-2019
Madagascar	Commitment: January 2006 Validated application: February 2008 Compliance: September 2011	2016-2018
Niger	Commitment: March 2005 Validated application: September 2007 Compliance: March 2011 Suspension: October 2017 Withdrawal: November 2017 Validated application: February 2020 Not compliant at this time	2012-2014
Liberia	Commitment: May 2007 Validated application: September 2008 Compliance: October 2009 Suspended: September 2018 Suspension lifted: March 2020	2016-2019
Sierra Leone	Commitment: October 2007 Validated application: February 2008 Suspended: February 2013 Suspension lifted: April 2014 Compliance: April 2014	2016-2019

1. The added value of the extractive sector

The value added of the extractive sector measures the wealth created by mining and oil companies. Within a company, it is calculated as the difference between sales and intermediate consumption. At the aggregate level, the value added of an activity can be related to GDP to give an estimate of the weight of this sector in the economy. It is, therefore, relevant information to judge the importance of the natural resources sector. The EITI Standard states that “implementing countries must disclose, when available, information about the contribution of the extractive industries to the economy”, including “the size of the extractive industries in absolute terms and as a percentage of GDP” (requirement 6.3.a of the 2019 EITI Standard). However, the Standard does not explicitly use the term value added. Within each country, an administration (national statistical institute, central bank or other) is normally responsible for publishing the value added for each sector, including the extractive sector, which is then included in most EITI reports.

Graph 1: Share of value added of the extractive sector in GDP (EITI reports)

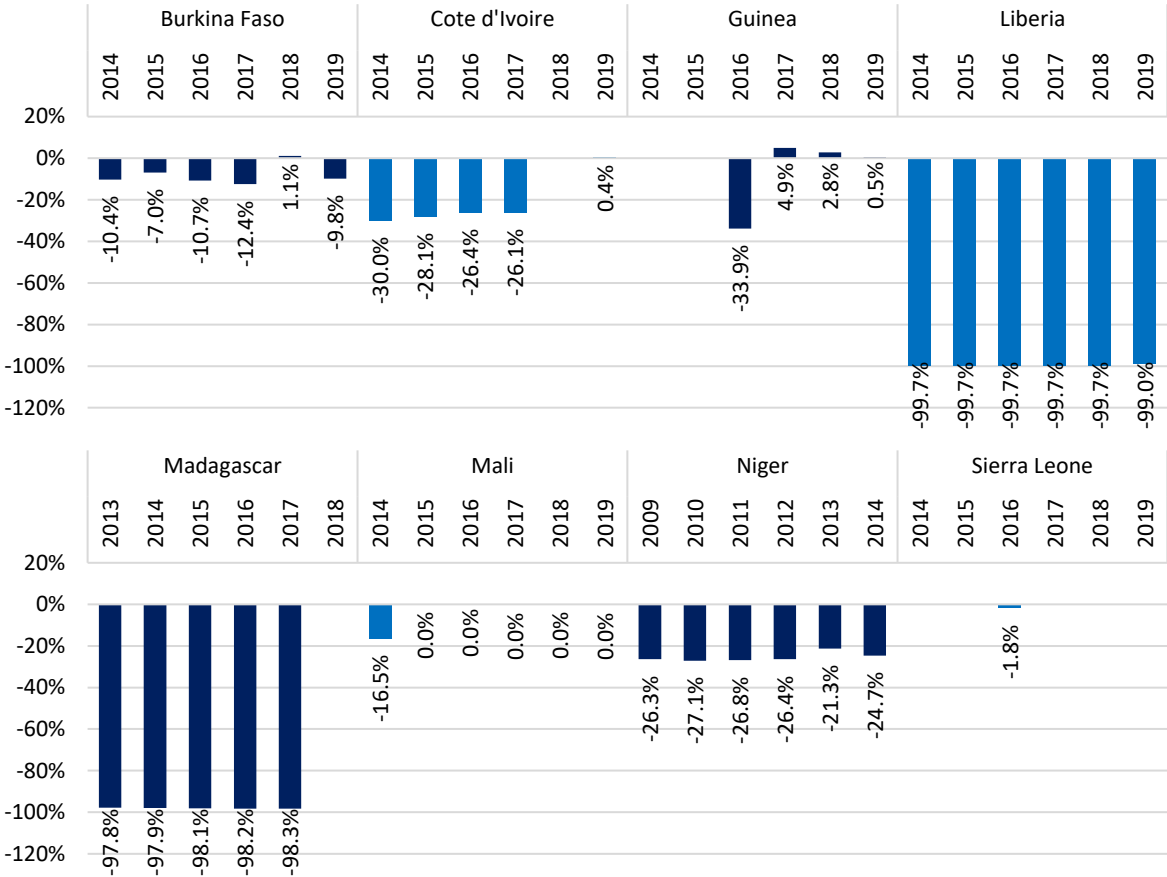


Source: Raw data provided by EITI country reports.

Some figures provided by the EITI reports, concerning the weight of the extractive sector in the GDP, appear however quickly as very little comparable. To see this, it is necessary to recalculate this weight from the value added and GDP data, making sure that both numbers appear reliable. While it is not easy to verify the value-added data, it is possible to compare the GDP used in the EITI reports with that available in the World Bank’s development indicators, for example. In order to compare countries, we simply need to convert all national currencies into U.S. dollars via the exchange rate. And at the same time, to be able to compare the years, we have to remove the

inflation via a deflator¹³. All this information is also available on the World Bank website. This approach makes it possible to realize that there are sometimes significant discrepancies. The discrepancies even seem completely aberrant in the cases of Liberia and Madagascar.

Graph 2: Difference between the GDP used in the EITI reports and the GDP published by the World Bank



Source: Authors' calculations of differences between raw data provided by EITI country reports and those of the World Bank.

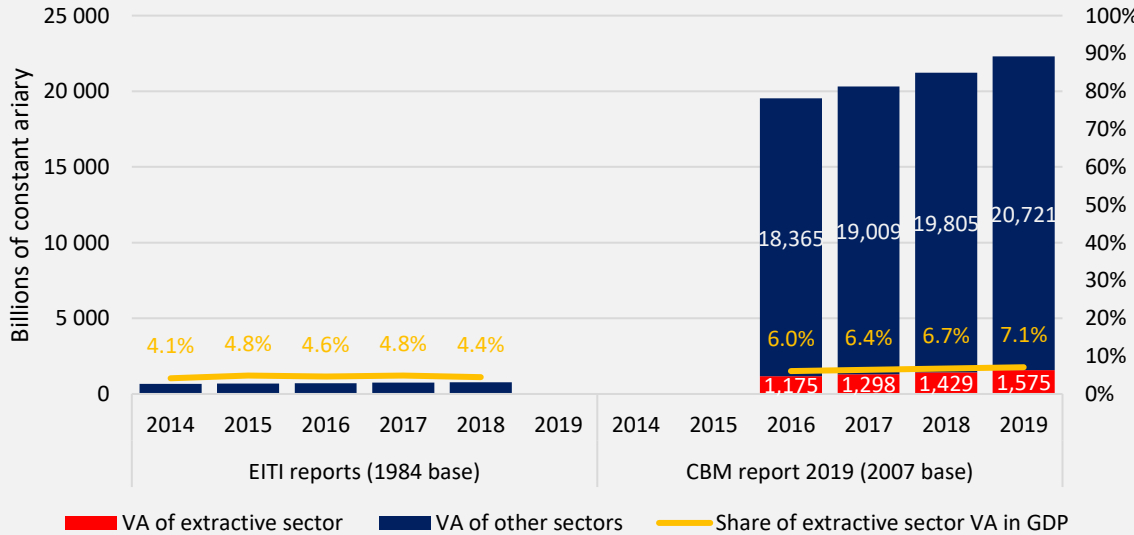
¹³ The methodology used in the study to convert current national currencies to constant U.S. dollars is the same as those used by the World Bank for GDP. The first step is to deflate the data into the current national currency. This is done by dividing them by the annual price index, calculated for a base year, from the inflation rates used as "GDP deflators" by the World Bank. The results thus obtained are the data in constant national currency. The second step is to calculate, for each year, the relative annual variations between these data in constant local currency. The obtained results are the real annual rates of change. The third step is to convert the current national currency data corresponding to the base year into U.S. dollars. This is done by dividing it by the official exchange rate at the uncertain, average over the year, also provided by the World Bank. The obtained result is the base year data in current U.S. dollars. The fourth and final step is to reapply to this dollar data the successive real annual rates of change previously calculated on the national currency data. To do this, the various successive real annual rates of change must be subtracted from or added to the current dollar data for the base year. The results thus obtained are the data in constant U.S. dollars, expressed in a common base year.

Box 4: Madagascar’s value-added and GDP

In Madagascar, the GDPs presented by the World Bank are 50 times higher than the GDPs in the EITI reports. In 2018, for example, the EITI indicates a GDP of only 780 billion ariary, compared to 45,400 according to the World Bank, a ratio of 1 to 58. The EITI reports give no explanation for this huge discrepancy, but cite the annual reports of the Central Bank of Madagascar (CBM) as their source. By reading the latter, it is possible to find the GDP and value-added data for the extractive sector that are included in the EITI reports. However, the central bank reports state that their data are expressed in constant values, starting from the base year 1984. However, the EITI reports omitted this crucial information, which explains the huge discrepancy. The first problem is, therefore, the confusion between current and constant data, given that most of the EITI data is current. In the database, it is therefore preferable that all information be expressed uniformly in current values.

Furthermore, BCM’s annual reports change base years between 2018 and 2019. While previous reports used a 1984 base year, the 2019 report now starts with a 2007 base year. This 2019 report includes a revaluation of the values added and constant GDPs for the previous years, from 2016 to 2018, starting from this new 2007 base year. However, the contributions of the extractive sector to GDP are not the same in the 2018 report (1984 base) and in the 2019 report (2007 base). For example, in 2018, the share of the extractive sector represented 4.6% of GDP in the 2018 report (1984 base), compared with 7.1% of GDP in the 2019 report (2007 base), which is still a significant difference. It seems, therefore, that a revaluation of value added has occurred at the same time as the change of base year. A second problem, therefore, arises from the revaluation of data from previous years. This difficulty is also frequently observed in the EITI reports, where the most recent reports go back to data from previous years. In the database, therefore, it is probably preferable that only the most recent data be retained, as they are considered better.

Graph 3: Madagascar’s added value (EITI reports, central bank)

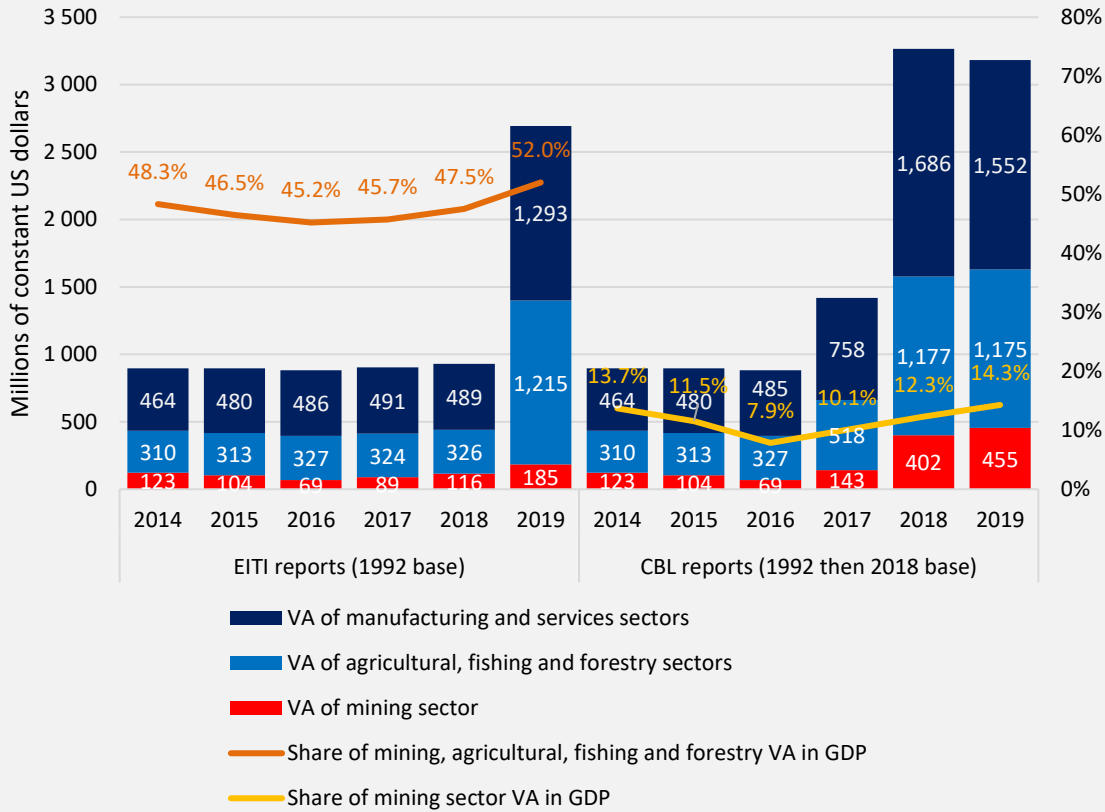


Sources: Raw data provided by EITI country reports. Raw data provided by the Central Bank of Madagascar (BCM) 2019 report. Authors’ calculations from these raw data.

Box 5: Liberia’s value-added and GDP

In Liberia, the GDPs presented by the World Bank are 3 to 4 times higher than the GDPs in the EITI reports. In 2018, for example, the EITI indicates a GDP of only US\$930 billion, compared to US\$3,423 according to the World Bank, a ratio of 1 to 3.7. As with Madagascar, Liberia’s EITI reports do not mention this large discrepancy, but cite the annual reports of the Central Bank of Liberia (CBL) as the source. By reading these, it is possible to find the GDP and value-added data for the extractive sector that are included in the EITI reports. The central bank reports indicate that their data are expressed in constant values, starting from the base year 1992. The first problem is, therefore, the same as for Madagascar: the EITI reports fail to specify that these are constant values. In addition, the BCL annual reports change base year from 2019 to 2020. While previous reports used a 1992 base year, the 2020 report now starts with a 2018 base year. It even seems that a beginning of re-evaluation has taken place already in the 2019 report, even if it still refers (perhaps wrongly) to the 1992 base year. The second problem is, therefore, strictly identical to that of Madagascar: a revaluation of previous years’ data can be observed in Liberia, but it is much less marked than the revaluation of value added and GDP in Madagascar.

Graph 4: Liberia’s value added (EITI reports, central bank)



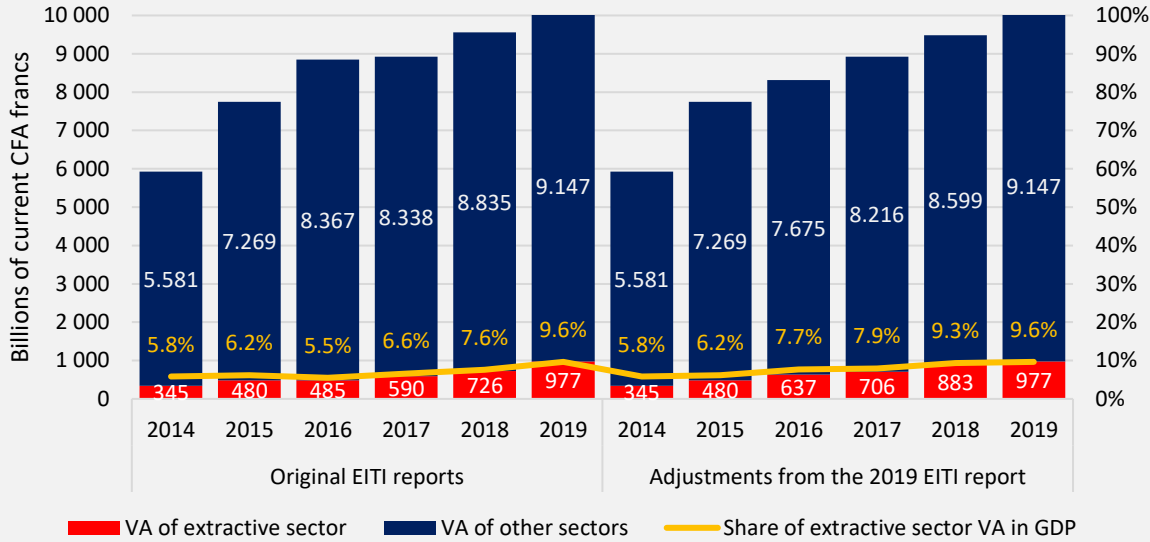
Sources: Raw data provided by EITI country reports. Raw data provided by the Central Bank of Liberia (CBL) annual reports. Authors’ calculations from these raw data.

In addition, it appears that the contribution of the extractive sector to GDP is greatly overstated in Liberia’s EITI reports compared to other countries, as it includes the entire primary sector. For example, in 2018, the EITI report states that the extractive sector accounts for 47.5 percent of GDP, but three-quarters of this figure comes from the agricultural, fishing and forestry sectors. In reality, the mining sector accounts for only 12.3% of GDP. A third problem here is the perimeter used to delimit the extractive sector. In the database, it is therefore preferable, where possible, to disaggregate the different sectors as much as possible. In addition, it is probably desirable to consider that the extractive sector, in the strict sense, includes only the mining, oil, and gas sectors.

Box 6: Mali's value-added and GDP

In Mali, there are very small discrepancies between the GDPs from the EITI reports and those from the World Bank. However, this is due to the adjustments made in the 2019 EITI report, which re-evaluated the data for the years 2016 to 2018. With few exceptions, it therefore seems appropriate to give priority to the most recent data, which are generally the best.

Graph 5: Mali's value added (EITI reports)



Source: Raw data provided by EITI country reports.

Box 7: Sierra Leone's value-added and GDP

In Sierra Leone, data on the extractive sector's value-added appears to be unreliable. The value-added and GDP figures are almost never reported; most often, only the percentage is mentioned, which limits the possibilities of verification. In the 2014 and 2016 EITI reports, it is reported that prospecting and mining represented 4.2% of GDP in 2010, 20.2% in 2014, and 2.7% in 2016. These data appear to show a high degree of variability. The cited source is the African Economic Outlook website, which is no longer available¹⁴. In the 2017-2018 EITI report, the source of the data changes to Statistics Sierra Leone (Stats SL)¹⁵. The contribution of the mining sector was then evaluated at 23.50% of GDP in 2013, 26.26% in 2014, 3.14% in 2015, 5.67% in 2016 and 4.72% in 2017. The dramatic decline observed between 2014 and 2015 is explained in the report by the Ebola epidemic and especially the significant decline in the price of iron ore. The production volume has indeed been divided by 25, following the shutdown of many mines. Finally, in the 2019 report, the source of the data changes again in favor of a report from the Ministry of Finance. The contribution of the extractive sector is now estimated at 0.60% of GDP¹⁶. However, it seems that these data do not refer to value-added, but rather to mining royalties as a percentage of GDP¹⁷. There must have been some confusion about what is covered by the contribution to GDP.

In conclusion, the multiple sources and high variability of Sierra Leone's data suggest caution, although the data in the Statistics Sierra Leone reports appear to be the most reliable. These reports provide GDP and value-added disaggregated by activity sector, in current and constant national currency (base 2006), and as a percentage of GDP. However, these reports appear to use a different deflator for each activity sector, which makes comparisons more difficult.

These few examples illustrate the many difficulties to which it is necessary to find solutions, even imperfect ones, in order to build a comparable database. It is clear that it is imperative to remain very vigilant and to seek, as soon as possible, to verify the reliability and comparability of as much information as possible and even to go back to the source when necessary. For Burkina Faso, Cote d'Ivoire, Guinea, Mali or Niger, the EITI reports provide the value-added of the extractive sector in the current national currency. It is, therefore, possible to divide this amount by the World Bank's current GDP to obtain the most reliable and comparable percentage contribution of the extractive sector to GDP. In doing so, the contribution of the extractive sector to GDP is often reduced from that reported in the EITI reports by one to two percentage points of GDP, probably because the most recent World Bank data revise past GDPs upwards. In Sierra Leone, the value added of the extractive sector, in current local currency, taken from Statistics Sierra Leone reports, could also be reported to the World Bank's GDP to maintain the same methodology. In Madagascar and Liberia, on the other hand, only constant value data are available. It is, therefore, not really possible to verify or recalculate them with World Bank GDP. In Madagascar, the percentages had to be taken as they are. In Liberia, however, they could be recalculated to remove the agricultural, fishing and forestry sectors in order to retain only the mining and oil sectors.

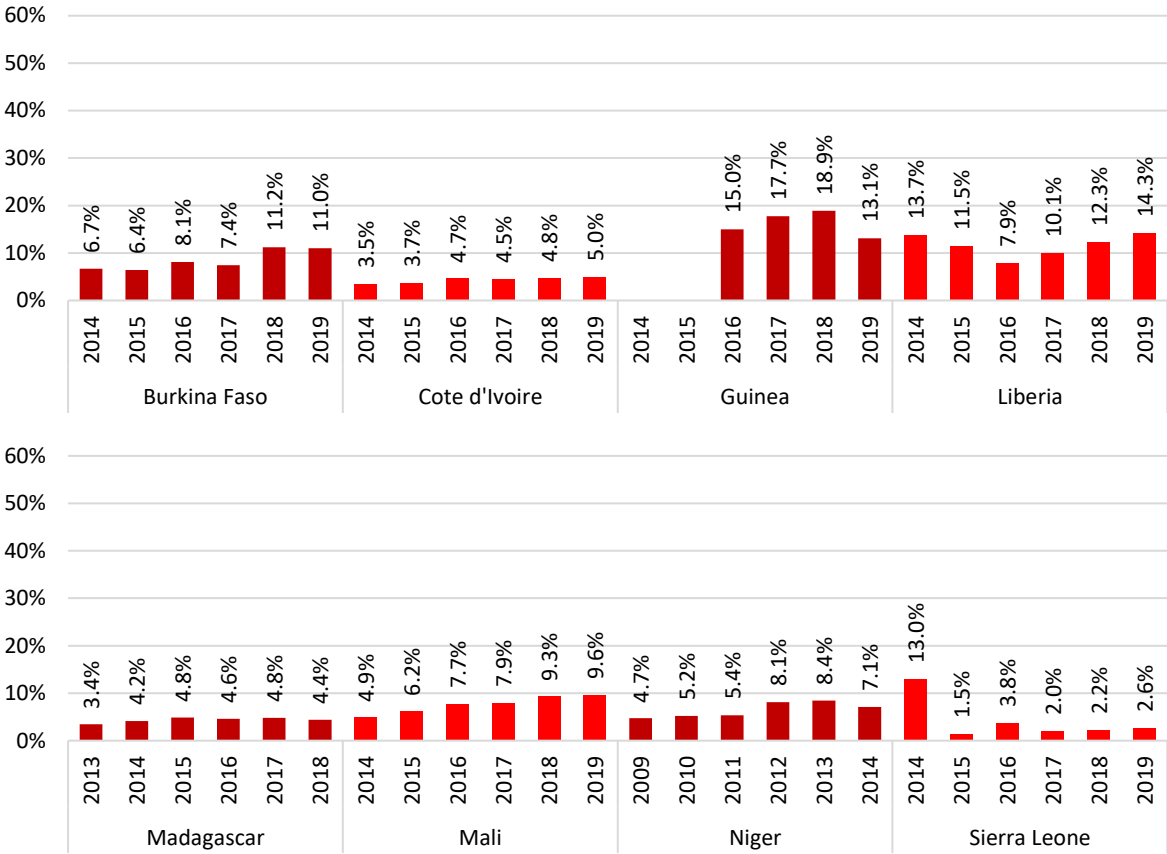
¹⁴ The African Economic Outlook website is apparently no longer accessible at the following address: www.africaneconomicoutlook.org

¹⁵ GDP related reports, published by Statistics Sierra Leone, are available at: <https://www.statistics.sl/index.php/gdp.html>

¹⁶ Sometimes, the contribution to GDP indicated is only 0.06%. This is certainly an error.

¹⁷ In the 2019 EITI report, the contribution to GDP (0.6%) is, in fact, calculated as the sum of royalties on rutile (0.2%), bauxite (0.0%), diamond and gold (0.2%), iron ore (0.0%), as well as licenses (0.2%).

Graph 6: Share of value added of the extractive sector in GDP (authors)



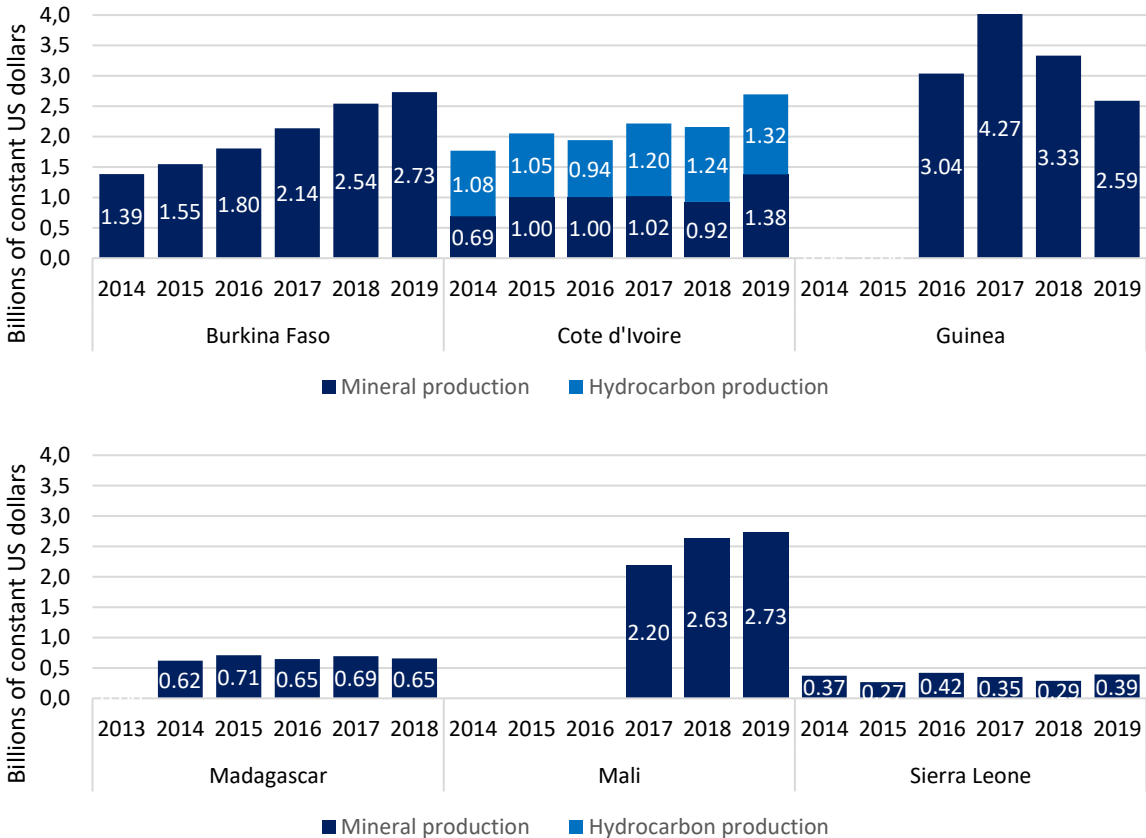
Source: Authors’ compilations and calculations based on data considered the most reliable to ensure better comparability.

In 2019, Liberia (14.3%) and Guinea (13.1%) appear to be the countries in the sample where the extractive sector contributes most strongly to GDP, followed by Burkina Faso (11.0%) and Mali (9.6%). Due to the development of gold mining, the latter two countries have also experienced strong growth in their mining sector in recent years. Between 2014 and 2019, the mining sector’s share of GDP increased by 64% in Burkina Faso and even by 95% in Mali. This share is also on the rise but has remained more modest in Cote d’Ivoire (5.0%) and Madagascar (4.4%).

2. The production of the extractive sector

Extractive sector production is a crucial piece of information, which should be expressed in volume and value and disaggregated by substance and by company. For example, the EITI Standard states that “implementing countries must disclose timely production data, including production volumes and values by commodity. This data could be further disaggregated by region, company or project, and include sources and the methods for calculating production volumes and values” (EITI Standard requirement 3.2, 2019). Despite its obvious and undeniable value, production is information that is often difficult to obtain and therefore to verify.

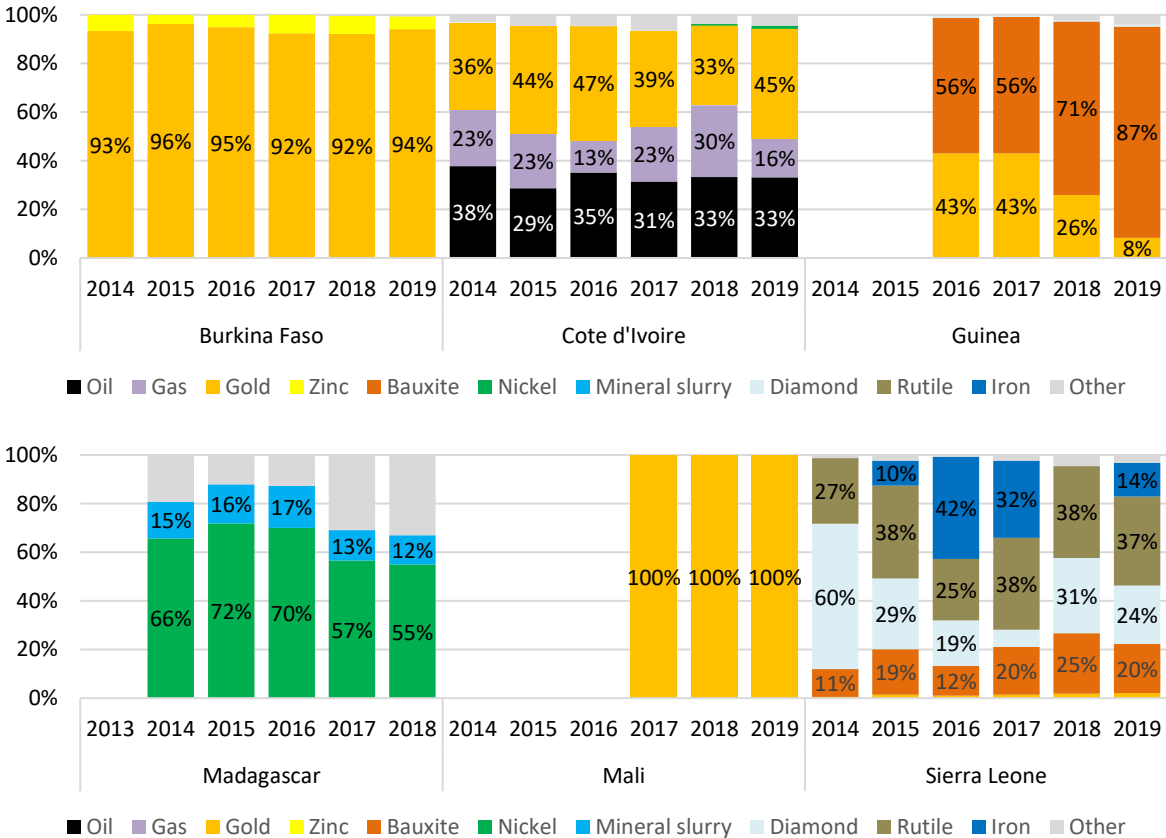
Graph 7: Mineral and hydrocarbon production, in billions of constant dollars, base 2018 (EITI reports)



Source: Authors’ calculations to compare in constant U.S. dollars, base 2018, the raw data provided by the EITI country reports.

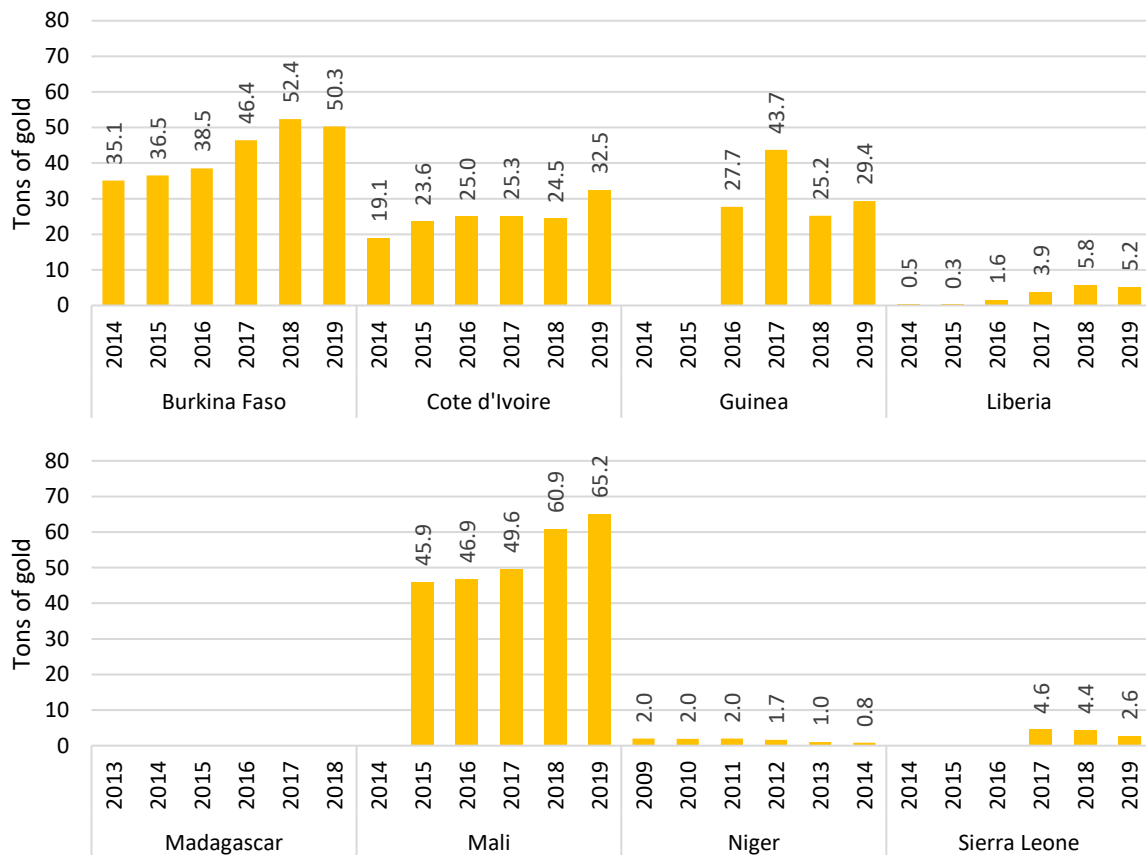
Value production has expanded significantly in some countries in recent years. Between 2014 and 2019, for example, the value of production doubled in Burkina Faso (+97%) and increased by half in Côte d'Ivoire (+52%). In contrast, production value has experienced high annual variability in Guinea and Sierra Leone, while it appears relatively stable in Madagascar. All countries in the sample are mineral producers. Gold production is the most widespread (7 of the 8 countries in the sample), followed by silver and diamonds (4 countries), then iron (Liberia, Sierra Leone) and bauxite (Guinea, Sierra Leone). But other minerals may be important locally, such as nickel (Madagascar), uranium (Niger) or rutile (Sierra Leone). Only two countries also produce hydrocarbons (Côte d'Ivoire and, to a lesser extent, Niger), although oil exploration operations also exist in other countries.

Graph 8: Share of each substance in the value of production, in current local currency (EITI reports)



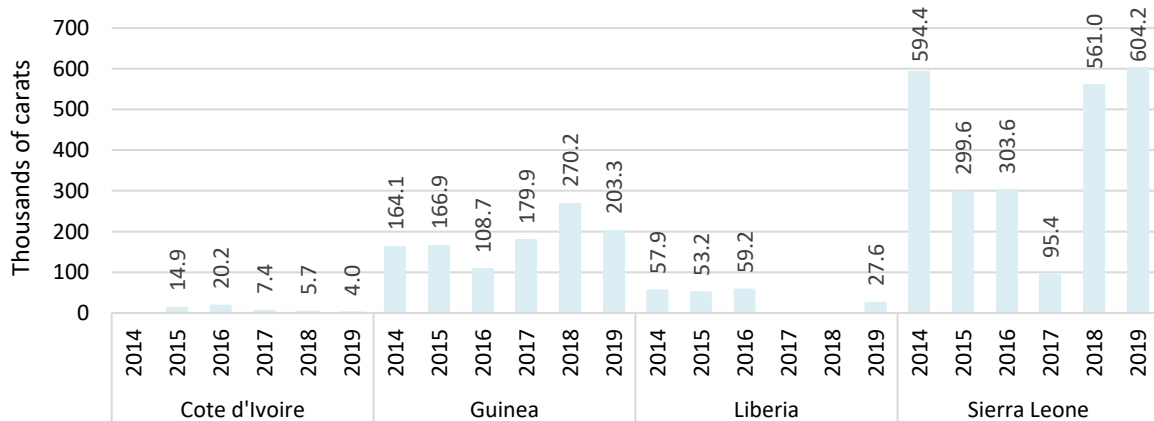
Source: Authors' calculations based on raw data provided by EITI country reports.

Graph 9: Gold production, in tons (EITI reports)



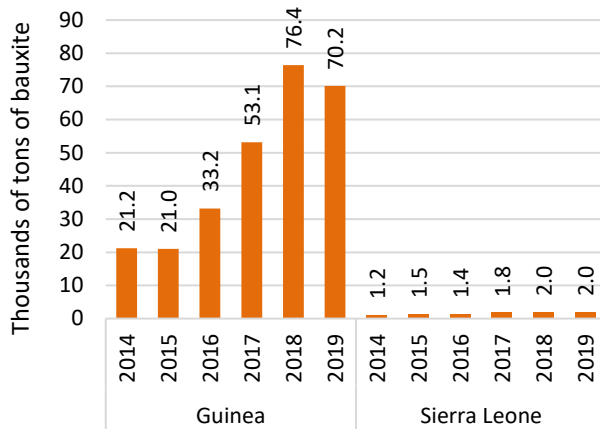
Source: Raw data provided by EITI country reports.

Graph 10: Diamond production, in thousands of carats (EITI reports)

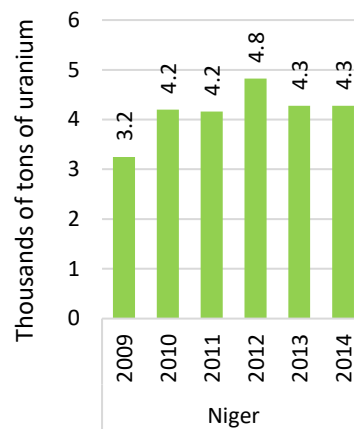


Source: Raw data provided by EITI country reports.

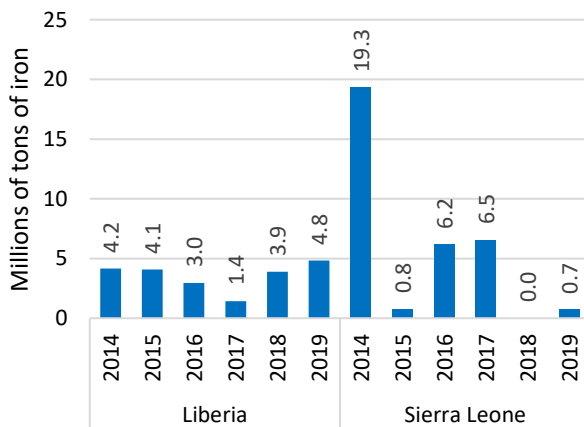
Graph 11: Bauxite production, in thousands of tons (EITI reports)



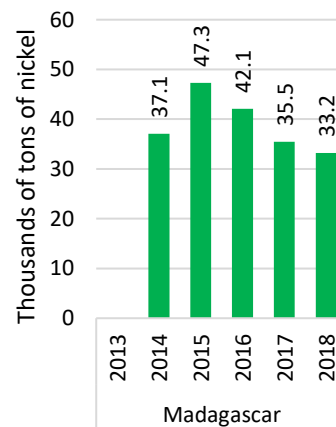
Graph 12: Uranium production, in thousands of tons (EITI reports)



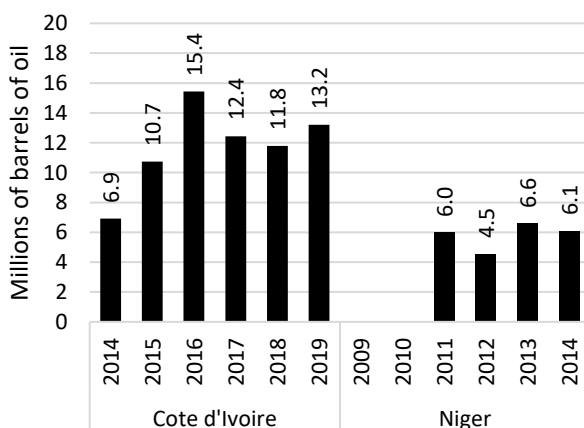
Graph 13: Iron ore production, in millions of tons (EITI reports)



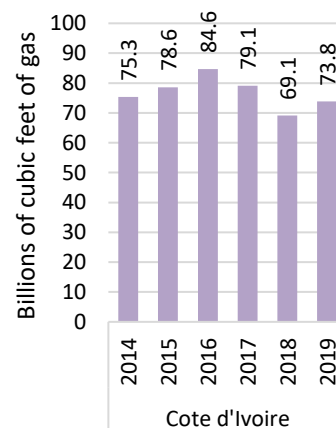
Graph 14: Nickel production, in thousands of tons (EITI reports)



Graph 15: Oil production, in millions of barrels (EITI reports)



Graph 16: Gas production, in billion cubic feet (EITI reports)



Sources: Raw data provided by EITI country reports.

Box 8: Mining production in Burkina Faso in 2019

Gold mining has led to a boom in Burkina Faso's mining sector. Between 2014 and 2019, the value of production almost doubled (+97%). In 2019, this now stands at 1,542 billion CFA francs ("F.CFA"), or \$2.6 billion. According to the General Directorate of Mines and Geology (Direction Générale des Mines et de la Géologie "DGMG"), the country produces mainly gold, which alone accounts for 94.6% of the value of production (F.CFA 1,459 billion). In 10 years, between 2009 and 2019, the net volume of gold has more than quadrupled (+312%). In 2019, 50.55 tons of gold were extracted, making Burkina Faso one of the largest producers on the African continent, after Ghana, South Africa, Sudan, and Mali. The second most important mineral produced is zinc, which accounts for 5.3% of the value of production (F.CFA 82 billion), with more than 211,000 tons. The country also has low production of silver (associated with gold), ores from quarries, and phosphate.

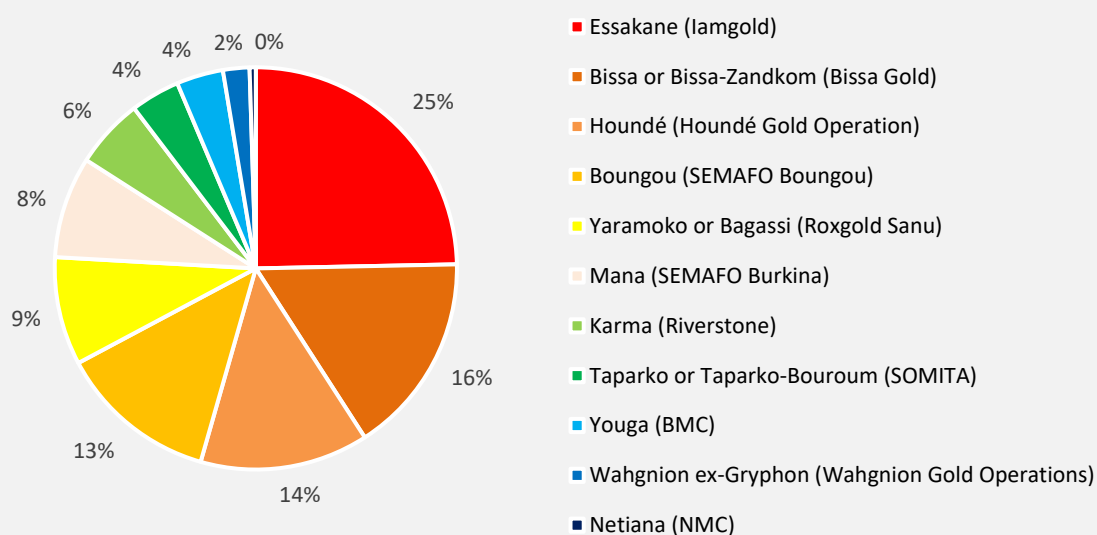
Table 2: Industrial mining production in Burkina Faso in 2019 (EITI Report 2019).

Mineral	Volume	Value (billions of FCFA)	Value (millions of dollars)	Value (%)
Industrial gold	50.29 t	1,451.30	2,470.18	94.1%
Artisanal gold	0.26 t	7.47	12.72	0.5%
Zinc	211,244.00 t	82.00	139.56	5.3%
Silver	1.425 t	0.43	0.74	0.0%
Quarry ores	788,726.16 m ³	0.41	0.70	0.0%
Phosphate	1,573.15 t	0.14	0.24	0.0%
TOTAL		1,541.75	2,624.14	100.0%

Source: Raw data provided by the 2019 Burkinabe EITI report, according to the General Directorate of Mines and Geology (DGMG).

Burkina Faso's mining production is mainly industrial. While industrial gold production is estimated at 50.29 tons in 2019, official artisanal production accounts for only 0.26 tons¹⁸. The country currently has 26 industrial mining permits, 23 of which are for gold and the other 3 for zinc (Perkoa mine), manganese (Tambao), and cement's limestone (Sahelian). Of these 26 permits, production data for the year 2019 is available for 12 mines that make up the reconciliation perimeter. Essakane is the largest mine, with 12.41 tons of gold produced, according to the DGMG, which represents a quarter of the country's production. Next come the mines of Bissa (8.15 tons), Houndé (6.81), Boungou (6.43) and Yaramoko (4.37). Together, these five mines account for more than three-quarters of Burkina Faso's gold production. The reconciliation work carried out by the EITI allows for a comparison of the production volume recorded by the DGMG (50.29 tons) with that declared by the mining companies (51.52 tons). The difference observed is, therefore, quite small, amounting to 1.23 tons more on the company side, i.e., a production that is only 2.4% higher than that announced by the DGMG.

Graph 17: Distribution by company of Burkina Faso's industrial gold production in 2019 (EITI 2019 report)



Source: Authors' calculations of percentages based on raw data provided by the Burkinabe EITI Report 2019, according to the General Directorate of Mines and Geology (DGMG).

¹⁸ However, the 2019 EITI report provides several estimates of artisanal gold production: 9.5 tons according to the 2016 National Survey of the Gold Mining Sector (ENSO), or even between 15 and 25 tons according to an OECD study.

Table 3: Burkina Faso's industrial mining production in 2019, by company and by mineral, in volume and value (EITI 2019 report)

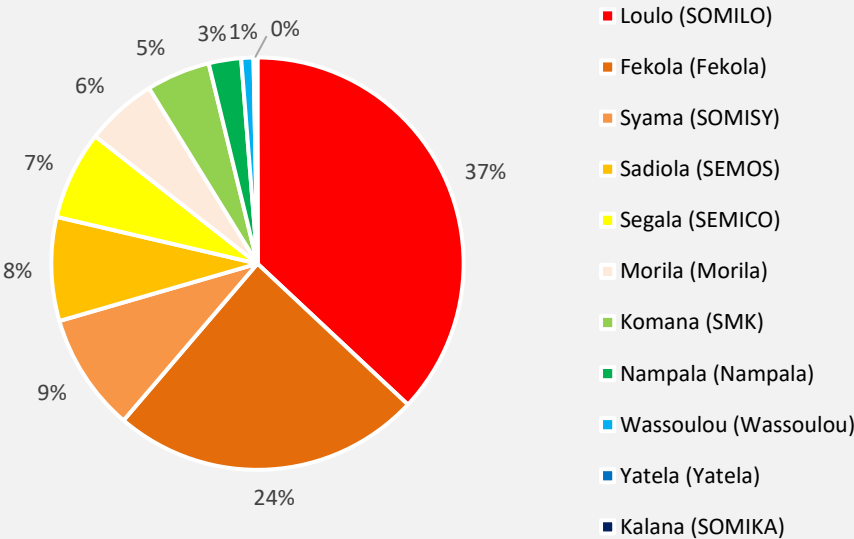
Mine (Company)	Mineral	Volume (tons)	Volume (tons)	Value (billions F.CFA)
		Companies	DGMG	DGMG
Batié (Konkera)	Gold			
Bissa or Bissa-Zandkom (Bissa Gold)	Gold	8.070	8.150	235.20
Bombore (Orezone Bombore)	Gold			
Bouere (Bouere-Dohoun Gold Operation)	Gold			
Boungou (SEMAFO Boungou)	Gold	6.690	6.430	185.56
	Silver	0.614	0.614	0.19
Bouroum (SOMITA)	Gold			
Essakane (Iamgold)	Gold	12.740	12.410	358.14
Guiro-Diouga (Komet Ressources Afr)	Gold			
Houndé (Houndé Gold Operation)	Gold	6.820	6.810	196.53
Inata or Belahouro (SMB)	Gold			
Kalsaka (Kalsaka Mining)	Gold			
Karma (Riverstone)	Gold	3.010	2.820	81.38
	Silver	0.061	0.061	0.02
Kiaka II (Kiaka)	Gold			
Mana (SEMAFO Burkina)	Gold	4.220	4.100	118.32
Netiana (NMC)	Gold	0.250	0.250	7.21
Perkoa (Nantou Mining)	Zinc	211,214.000	211,243.800	82.00
Sahelian (Sahelian Mining)	Limestone			
Samtenga (Nordgold Samtenga)	Gold			
Sanbrado ex-Tanlouka (SOMISA)	Gold			
Seguenega (BUMIGEB)	Gold			
Tambao (Pan Africa Tambao)	Manganese			
Taparko or Taparko-Bouroum (SOMITA)	Gold	1.990	1.990	57.43
Wahgnion ex-Gryphon (Wahgnion Gold Operations)	Gold	1.420	1.070	30.88
	Silver	0.347	0.347	0.10
Yaramoko or Bagassi (Roxgold Sanu)	Gold	4.380	4.370	126.11
	Silver	0.403	0.403	0.12
Yeou (High River Gold)	Gold			
Youga (BMC)	Gold	1.930	1.890	54.54
TOTAL	Gold	51.520	50.290	1,451.30
	Zinc	211,214.000	211,243.800	82.00
	Silver	1.425	1.425	0.43

Source: Raw data provided by the 2019 Burkinabe EITI report, based on company declarations and the General Directorate of Mines and Geology (DGMG).

Box 9: Mining production in Mali in 2018

Gold mining has also led to a boom in the Malian mining sector. In 2018, the production value is estimated at F.CFA 1,607 billion, or nearly \$2.9 billion. The country produces exclusively gold, although EITI reports also mention the production of mineral water, flavored drink, and dolerite. Between 2015 and 2018, the volume of gold produced increased by one-third (+32.6%). In 2018, it is evaluated at 66.89 tons by the National Directorate of Geology and Mines (Direction Nationale de la Géologie et des Mines "DNGM"), which makes Mali the fourth largest producer on the African continent. Although the artisanal sector is not negligible (6 tons), most of the production is carried out by the industrial sector (60.89 tons). Mining is concentrated in two regions in southwest Mali: Kayes (77%) and Sikasso (23%). The country currently has 21 industrial-scale mining permits, including 13 gold mines for which production data is available for the year 2018. Loulo and Fekola are by far the two largest mines, producing 22.52 and 14.78 tons of gold, respectively, representing 37% and 24% of Malian industrial production. The difference between the volume recorded by the DNGM (60.89 tonnes) and that declared by the companies (65.77 tonnes) amounts to an additional 4.88 tonnes on the company side, which represents 8% more production than that measured by the DNGM.

Graph 18: Distribution by company of Mali’s industrial gold production in 2018 (EITI 2018 report)



Source: Authors’ calculations of percentages based on raw data provided by the Malian EITI 2018 Report, according to the National Directorate of Geology and Mines (DNGM).

Table 4: Mali's industrial mining production in 2018, by company and by mineral, in volume and value (EITI 2018 report)

Mine (Company)	Mineral	Volume (tons)	Volume (tons)	Value (billions F.CFA)
		Companies	DNGM	DNGM
Fekola (Fekola)	Gold	14.778	14.778	355.039
Finkolo (SOMIFI)	Gold	0.415		
Kalana (SOMIKA)	Gold	0.036	0.033	0.793
Kofi (Kofi)	Gold	5.106		
Komana (SMK)	Gold	2.913	3.048	73.228
Loulo (SOMILO)	Gold	22.518	22.518	540.991
Morila (Morila)	Gold	3.408	3.408	81.877
Nampala (Nampala)	Gold	1.440	1.547	37.166
Sadiola (SEMOS)	Gold	4.950	4.950	118.923
Segala (SEMICO)	Gold	4.236	4.232	101.673
Syama (SOMISY)	Gold	5.225	5.639	135.486
Wassoulou (Wassoulou)	Gold	0.596	0.583	14.006
Yatela (Yatela)	Gold	0.153	0.153	3.676
TOTAL	Gold	65.774	60.889	1,462.858

Source: Raw data provided by the 2018 Malian EITI report, based on company declarations and the National Directorate of Geology and Mines (DNGM).

Box 10: Mining production in Guinea in 2019

Bauxite mining is a major part of Guinea's economy. In 2019, the value of production is estimated at 25,545 billion Guinean francs, or nearly \$2.7 billion. The country mainly produces bauxite, which alone accounts for 84.7% of the total production value (21,627 billion Guinean francs). In 4 years, between 2016 and 2019, the extracted volume has more than doubled (+111%) to reach 70 million tons, making Guinea the second largest producer in the world, after Australia. In addition, there is a factory in the country that transforms bauxite into alumina. The second mineral produced is gold, which accounts for 10.5% of the production value (2,691 billion Guinean francs), with nearly 12.5 tons. The country also produces 200,000 carats of diamonds. Guinea also has significant iron ore reserves. The Simandou deposit in the southeast of the country is considered one of the largest in the world. However, it has not yet been exploited, although the Winning Simandou Consortium has acquired the rights to it.

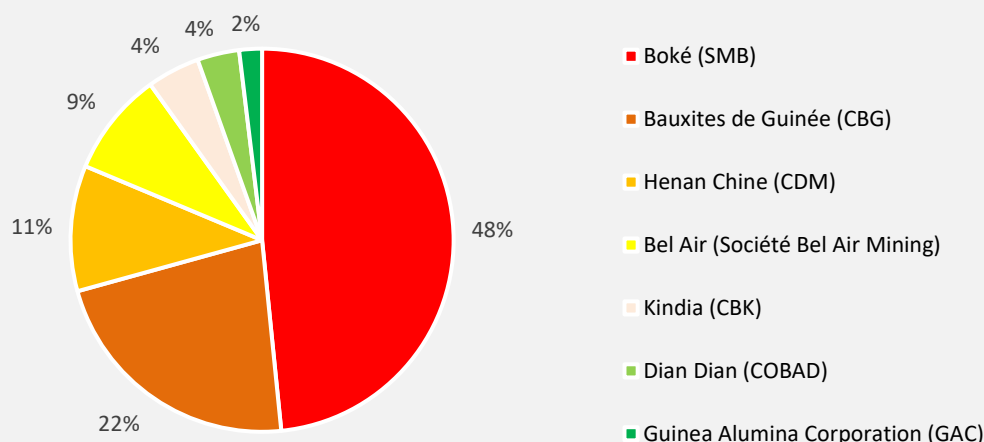
Table 5: Guinea's mining production in 2019 (EITI 2019-2020 report)

Mineral	Volume	Value (billions of Guinean francs)	Value (millions of dollars)	Value (%)
Bauxite	70,173,327 t	21,626.97	2,277.29	84.7%
Industrial gold	12.453 t	2,690.82	283.34	10.5%
Alumina	367,780 t	1,038.56	109.36	4.1%
Artisanal diamonds	203,278 ct	187.00	19.69	0.7%
Silver	0.358 t	1.80	0.19	0.0%
TOTAL		25,545.15	2,689.87	100.0%

Source: Raw data provided by the Guinean EITI Report 2019-2020, based on company reports. Authors' calculations.

SMB is the largest bauxite mine in Guinea. According to the 2019 mining register, the country has 27 mining concessions and 35 industrial mining permits. However, it is common for a single company to hold multiple mining rights. Production data is available for 10 companies, of which 7 exploit bauxite. The Boké Mining Company (Société Minière de Boké "SMB") is undoubtedly the largest mine. With 3 mining permits and 34 million tons of bauxite, it alone accounts for almost half (48%) of Guinean production. It is followed by the Guinea Bauxite Company (Compagnie des Bauxites de Guinée "CBG"), with 15.7 million tons, which has 2 mining concessions. Contrary to standard EITI practice, reconciliation work has not been carried out on production, as only the information reported by companies is disclosed. The volume and value of total Guinean bauxite production is, therefore, only the sum of the production of the 7 companies that provided data.

Graph 19: Distribution by company of Guinea's industrial bauxite production in 2019 (EITI 2019-2020 report)



Source: Authors' calculations of percentages from raw data provided by the Guinean EITI Report 2019-2020, based on company declarations.

Table 6: Guinea's industrial mining production in 2019, by company and by mineral, in volume and value (EITI 2019-2020 report)

Mine (Company)	Mineral	Volume (tons)	Value (billions Guin. frcs)
		Companies	Companies
AngloGold Ashanti de Guinée (SAG)	Gold	7.098	
Bauxites de Guinée (CBG)	Bauxite	15,656,087	3,056.760
Bel Air (Société Bel Air Mining)	Bauxite	6,159,810	2,107.610
Boké (SMB)	Bauxite	33,964,090	11,661.070
Dian Dian (COBAD)	Bauxite	2,484,752	444.780
Dinguiraye (SMD)	Gold	5.356	2,690.820
	Silver	0.358	1,804.390
Friguia (SAF)	Alumina	367,780	1,038.560
Guinea Alumina Corporation (GAC)	Bauxite	1,345,781	808.590
Henan Chine (CDM)	Bauxite	7,442,048	2,507.560
Kindia (CBK)	Bauxite	3,120,759	1,040.600
TOTAL	Bauxite	70,173,327	21,626.970
	Gold	12.454	2,690.820
	Alumina	367,780	1,038.560
	Silver	0.358	1,804.390

Source: Raw data provided by the Guinean EITI Report 2019-2020, based on company declarations.

Production volumes and values are difficult to verify and raise many problems of interpretation. The first and perhaps most important problem is understanding what each figure covers. Do the production figures cover all companies in the extractive sector or only those in the reconciliation perimeter that have filed a declaration with the EITI? Is it the industrial sector, the artisanal sector, or both? Is this an exact figure, which can be recalculated in the report, or just an estimate, unrelated to the report, from an external source? It is not always easy to know. The macro level is far from always equal to the sum of the microdata of each company. And even when it is, this generally means that the total production data only corresponds to the sum of the productions of

the enterprises included in the conciliation perimeter. What then of the other firms, which are sometimes very numerous? Are they only in the construction phase, or do they also produce but their data are not available? Because in the latter case, this implies that the total production is actually underestimated. Moreover, for the same data, there are often several different figures because they come from several sources. There is, of course, the private source (company declarations) and the public source (government declarations), but it also happens that several public administrations communicate different figures. When the difference is small, it can be considered negligible, but when it is large, an arbitrary choice must be made to try to maintain consistency in the database.

Another difficulty concerns the large number of measurement units and their conversions. The International System of Units (SI) for volume (cubic meters) and mass (kilograms) is often opposed to Anglo-Saxon measurements (barrels, feet, etc.). The emblematic case is, of course, the conversion between ounces (oz) and kilograms (kg). Precious metals, such as gold or silver, should normally be measured in “troy” ounces (oz t) according to the following parity: $1 \text{ oz t} = 31.1034768 \text{ g}$ or reciprocally $1 \text{ kg} \approx 32.15075 \text{ oz t}$. However, the troy ounce is only one specific measure of the ounce, of which there are different weights around 30 g. The standard ounce today in the Anglo-Saxon countries is the “avoirdupois” ounce (oz av) with less mass: $1 \text{ oz av} = 28.349523125 \text{ g}$ or reciprocally $1 \text{ kg} \approx 35.27396 \text{ oz av}$. Now, in the EITI reports, when both measures are reported, both in ounces and kilograms, sometimes the conversion has been made from avoirdupois ounce instead of troy ounce, probably because the online converters use it as the default ounce measure. This is the case, for example, in the 2017 Guinean EITI report for silver¹⁹. On small volumes, the conversion difference is small, but on large volumes, such as a country’s total production, it can amount to several tons. When the report does not specify in which direction the conversion has been made, this type of error is impossible to correct since it is not possible to know which of the two figures, in ounces or kilograms, is the true value to be retained. This example illustrates the extreme need for transparency and methodological explanations to allow for a full analysis of EITI reports. In addition, some of the reports sometimes clarify the units of measurement for minerals. For example, for zinc, there may be a distinction between wet and dry tons, or even net weight. For gold, it may sometimes refer to raw gold, net gold, or fine gold.

The valorization of the production also raises questions. Data are more often available in volume than in value. But when the value is specified, the question is to know how it was calculated. Is it really the sales revenue collected by the company? or is it not rather a simple estimate of the value of the production, only evaluated by multiplying the volume produced by the average price of the substance over the period? The reports generally do not specify this, with a few rare exceptions, such as Burkina Faso, which states very clearly in its 2018 report that “production was valued at the average 2018 sales price of each substance”. Although it is not mentioned, it is likely that most, if not all, of the production volumes are, in fact, valued in this way. This is perfectly understandable, especially if the production has not yet been sold. Nevertheless, when this is the case, it is important to note that this is only an estimate of production, which may differ from the revenue received by the company. However, in calculating the sharing of extractive rent, it is the company’s revenue that is most relevant. In addition, it would also be appropriate to clearly state the price of the substance that has been retained and its source. The same recommendation also applies to monetary units. Since production can be valued either in national currency or in U.S. dollars, or sometimes even in both currencies simultaneously, it would be relevant to explain the methodology used and the exchange rate used.

¹⁹ In the Guinean 2017 EITI report, the volume of silver production achieved within two gold mines is transcribed in ounces on page 114 and in kilograms on page 151. AngloGold Ashanti de Guinée (SAG) is reported as producing 17,795 oz, or 504 kg, while the Société Minière de Dinguiraye (SMD) produces 13,842 ounces, or 392 kg. By doing the calculation, it appears that the conversion used is the following: $1 \text{ kg} \approx 35.31 \text{ oz}$. It is, therefore, the avoirdupois ounce instead of the troy ounce.

3. Employment in the extractive sector

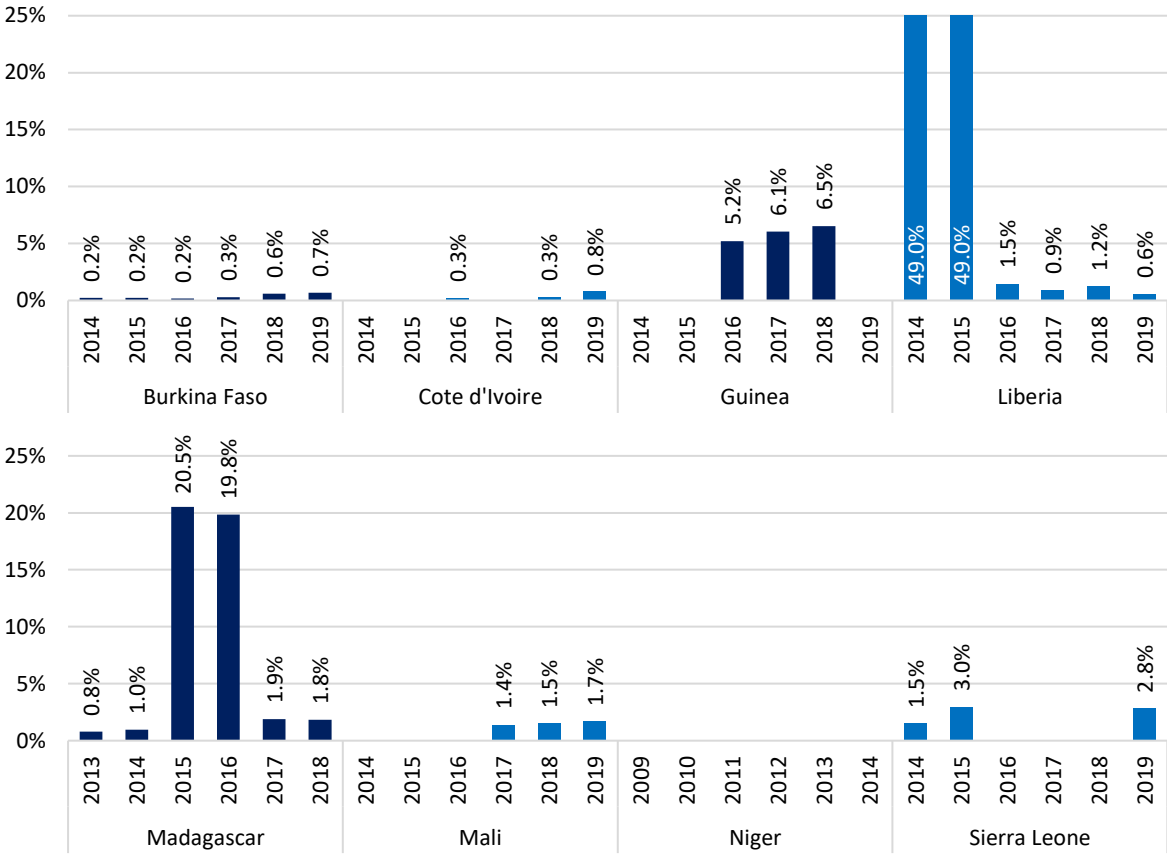
The number of jobs created by the extractive sector is a recurring issue among civil society and the political class. Major industrial projects generate few jobs, which can lead to discontent among local communities, who often expect significant economic benefits. More and more African mining legislation, therefore, includes specific measures in favor of employment, which are generally based on two pillars: first, national preference in terms of jobs for equivalent qualifications, and second, the training of national personnel. Since the amendment of its mining act in 2013, Guinea is probably one of the countries whose legislation is the most advanced in this regard²⁰. The law stipulates that holders of mining rights must “give priority to employing Guinean managers with the required skills” and “employ exclusively Guineans for all jobs that do not require a qualification”, while they can only “employ a reasonable number of expatriate workers”. A table even imposes increasing minimum quotas of Guinean workers as the mining project progresses, reaching 100% Guinean workers and 90% Guinean managers from the 11th year of exploitation. In addition, from the date of first commercial production, the company’s Deputy General Manager must be Guinean. And no later than five years later, the General Manager must also be Guinean. Although less restrictive, similar provisions exist, for example, in the Malian Mining Act²¹. The issue of national staff employment is increasingly becoming a priority for states.

EITI job disclosure requirements changed in 2019. Initially, the 2013 and 2016 Standards stated that “implementing countries must disclose, where available, information about the employment in the extractive industries in absolute terms and as a percentage of the total employment” (requirements 3.4.d of the 2013 EITI Standard and 6.3.d of the 2016 EITI Standard). The 2019 EITI Standard now calls for “information on the employment in the extractive industries in absolute terms and as a percentage of the total employment”. Furthermore, “the information should be disaggregated by gender and, when available, further disaggregated by company and occupational level” (requirement 6.3.d of the EITI Standard, 2019). In the French translation, the denominator used to calculate the percentage changed in 2019 from “total employment” to “employed labor force”. This change has the advantage of avoiding the ambiguous notion of total employment, which can vary between countries, while there is an international definition of the employed labor force. In practice, however, it is rather the labor force that is used in reports, probably because data on the employed labor force are not available.

²⁰ The Guinean Mining Act (Law L/2011/006/CNT of September 9, 2011, amended by Law L/2013/053/CNT of April 8, 2013) details the requirements for national employment in section 108, as well as those for training in section 109.

²¹ The Malian Mining Act (Ordinance n°2019-022/P-RM of September 27, 2019) provides for “giving preference, with equal qualifications, to Malian personnel” and for “implementing a training program” in section 138. This provision is then specified in section 221 and subsequent sections of the regulations of the aforementioned mining act (Decree n°2020-177/PT-RM of November 12, 2020).

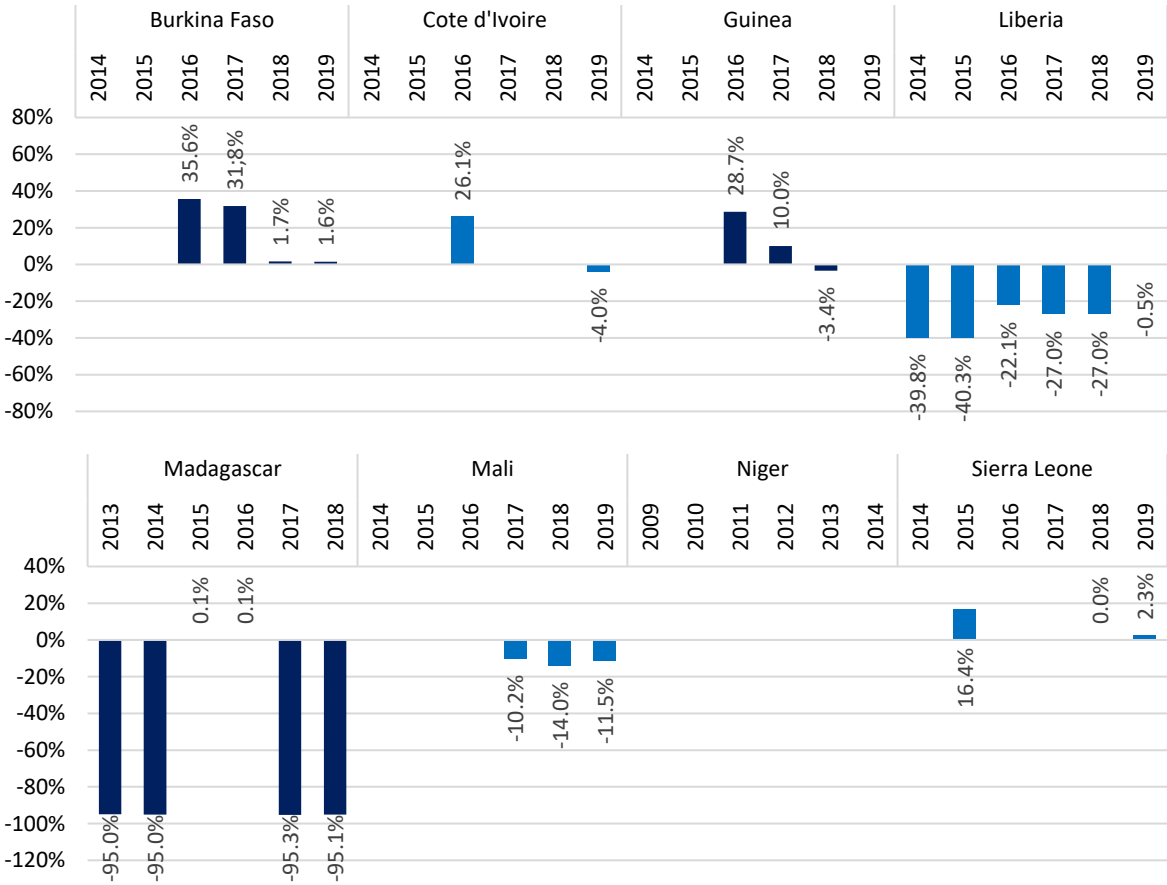
Graph 20: Share of extractive sector jobs in total employment or labor force (EITI reports)



Source: Raw data provided by EITI country reports.

The extreme differences between some of the figures provided in the EITI reports for extractive sector employment immediately reveal important comparability problems. In order to address these, it is necessary to recalculate the percentages, ensuring the reliability of both the number of people employed in the extractive sector and the total workforce. It is complicated to be able to truly verify the number of workers in the sector, except by examining consistency in terms of level of disaggregation (industrial, artisanal, subcontractors) and sharp trend breaks. On the other hand, the labor force data made available online by the World Bank can easily be used to harmonize the denominator instead of the total employment or labor force considered in the EITI reports. The comparison between the two data sources highlights very large discrepancies, which can exist both upwards and downwards. In the case of Madagascar, the discrepancy even appears to be aberrant for the years 2013, 2014, 2017 and 2018 since the total employment considered in the EITI reports is around 600,000 jobs, compared to an active population of around 12 to 13 million according to the World Bank.

Graph 21: Discrepancies between the total employment or labor force used in EITI reports and the labor force published by the World Bank



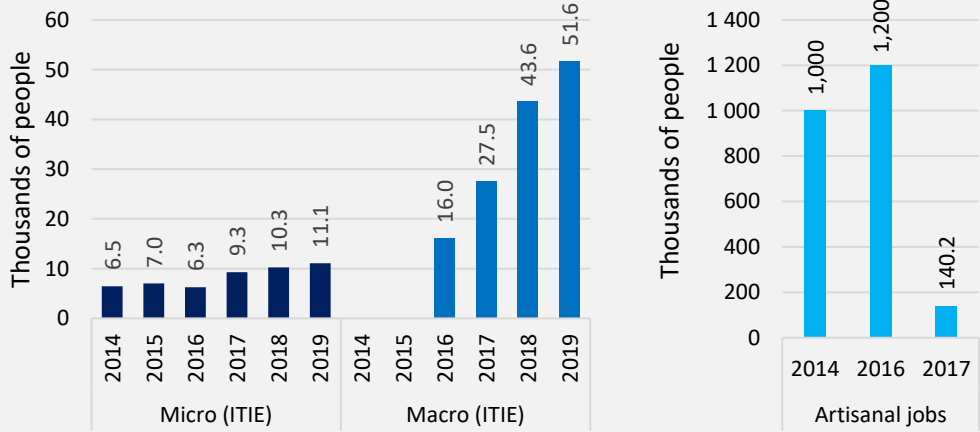
Source: Authors' calculations of differences between raw data provided by EITI country reports and World Bank data.

The accounting of the number of jobs in the extractive sector also seems to differ greatly from one country to another and even from one year to another. The most reliable data probably concern the micro level, i.e. the number of workers directly declared by the companies included in the conciliation perimeter. These data evaluate the number of workers in the industrial sector at only a few thousand. For the year 2018, this number of workers ranges from 2,600 in Liberia to just over 13,500 in Guinea. However, EITI reports do not generally use these micro-level data to calculate the macro-level share of extractive employment, but rather other broader data from public sources, such as the National Institute of Statistics or the Ministry of Labor. The number of workers in the extractive sector is then evaluated at several tens of thousands of people. For the year 2018, this number ranges from nearly 20,000 people in Liberia to over 280,000 in Guinea. However, this figure is difficult to interpret and compare. According to the country and the year, it may or may not include artisanal miners, subcontractors, or other indirect jobs. In addition, the number of artisanal miners is generally only an estimate taken from a report or study. It can, therefore, vary widely depending on the source, from several hundred thousand to several million people. It is, therefore, probably best not to include artisanal jobs in spatial comparisons because the estimates are too volatile.

Box 11: Employment in the extractive sector in Burkina Faso

Employment in Burkina Faso perfectly illustrates several of the different problems frequently faced. Microeconomic data, derived from the declarations of large companies, are the most reliable. The reconciliation perimeter includes a dozen companies holding industrial mining rights. Their workforce increased by 71% between 2014 and 2019, from 6,464 to 11,055 people. Macro data, on the other hand, are more complex to analyze. The overall number of employees highlighted in the EITI reports has more than doubled (+217%) between 2016 and 2019, from 16,048 to 51,631. However, it appears that these figures are not really comparable because the source of data has changed. In 2016 and 2017, the EITI reports rely on statistics from the Directorate General of Economy and Planning (Direction Générale de l’Economie et de la Planification “DGEP”) on the “workforce employed in the extractive sector (gold, zinc, quarries and sands)”. So, it seems that it is more about industrial jobs. While in 2018 and 2019, EITI reports now use data collected by the National Institute of Statistics and Demography (Institut National de la Statistique et de la Démographie “INSD”) on « employment in the mining sector (including the artisanal sector) ». Artisanal jobs would, therefore, be included in addition to industrial jobs. However, if this is the case, the number of artisanal operators seems very low compared to other estimates. The EITI reports mention three other evaluations that are much higher for artisanal jobs. A first figure from the Burkina Faso Embassy in Paris, from January 2014, estimates the employment contribution of the informal mining sector at 1 million people. A second figure, from the report of a parliamentary commission²² of September 2016, even reaches 1.2 million. A third figure is given by the National Survey on the Gold Mining Sector (Enquête Nationale sur le Secteur de l’Orpailage “ENSO”)²³, conducted by INSD and published in September 2017. This survey, in turn, counted 140,196 workers “directly linked to artisanal gold mining”. The multiplicity of figures and, above all, the very large discrepancies between them make it very difficult to establish a synthetic and comparable database, even within the same country.

Graph 22: Employment in the extractive sector in Burkina Faso (EITI reports)



Source: Raw data provided by EITI country reports.

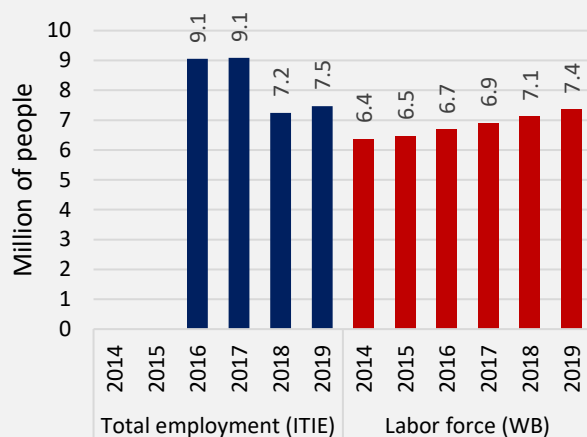
²² The summary report produced by the Parliamentary Commission on the management of mining rights and the social responsibility of mining companies is available at the following address:

https://www.assembleenationale.bf/IMG/pdf/rapport_synthese_commission_d_enquete_parlementaire.pdf

²³ The National Survey on the Gold Mining Sector (ENSO) conducted by INSD is available at the following address: http://www.insd.bf/contenu/enquetes_recensements/ENSO/Principaux_Resultats_ENSO.pdf

In Burkina Faso's EITI reports, the total workforce is also problematic. A sharp decline of 20% is observed between the years 2017 and 2018. This surprising break in trend comes from a change in indicator and source. In 2016 and 2017, the EITI reports relied on DGEP statistics, which evaluated the total number of jobs in the country at about 9.1 million. While in 2018 and 2019, the EITI reports now use World Bank data, which measures the country's labor force at over 7.2 million people. This change in indicator and source is due to the change in the 2019 EITI Standard, which in French abandons the concept of "total employment" for the benefit of the "employed labor force". However, the comparison between the DGEP's total employment and the World Bank's labor force raises questions. How can we explain the fact that the total employment figures are so much higher than those of the labor force? It was not possible to find the DGEP source document on which the EITI relied. It is, therefore, only possible to make assumptions. In this accounting of employment, perhaps the same individual can hold several jobs. Perhaps this accounting includes the work of children under 15 years of age, who are not included in international definitions of the working age population and therefore of the labor force. Perhaps the discrepancy arises from employment in the informal sector. In any case, to allow for better comparability, it seems absolutely necessary to recalculate the share of extractive sector employment from a single source: the World Bank's labor force.

Graph 23: Total employment or labor force in Burkina Faso (EITI reports, World Bank)

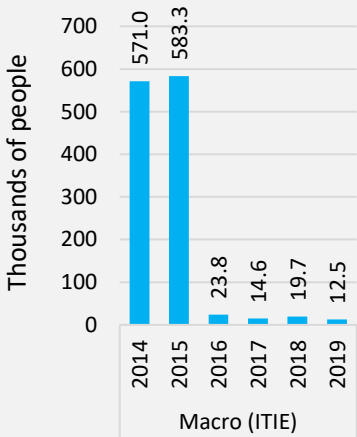


Sources: Raw data provided by EITI country reports. Raw data provided by the World Bank (WB).

Box 12: Employment in the extractive sector in Liberia

In Liberia, like the value-added figures, the EITI reports consider employment in the entire primary sector, including agriculture, fish farming, and forestry. This is why, at the macro level, the share of employment in the primary sector is estimated at 49% in 2014 and 2015. However, this percentage then decreases sharply to only 1.5% or less from 2016. This decline is explained by a radical change in the source of data. The EITI reports now calculate using microeconomic information that concerns only a few large companies. As a result, the number of jobs in the primary sector has fallen from almost 600,000 to about 20,000. In fact, focusing on the industrial mining, oil, and gas sectors alone, 2,515 jobs were reported in 2019 by companies included in the conciliation perimeter. And regarding the artisanal sector, the 2019 EITI report uses figures from a study²⁴ done for the EITI, dating from 2015. There would be approximately 100,000 artisanal miners and up to 500,000 diggers.

Graph 24: Employment in the primary sector in Liberia (EITI reports)



Source: Raw data provided by EITI country reports.

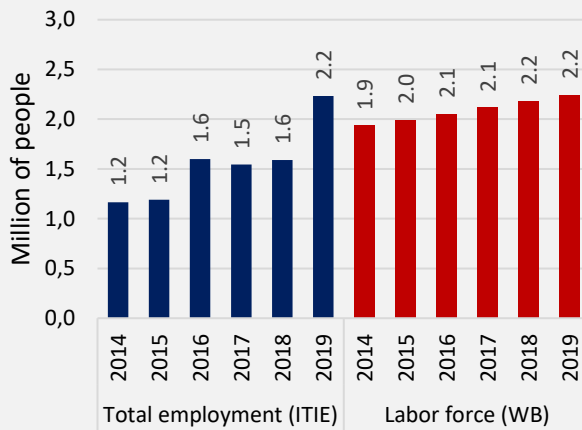
Graph 25: Employment in the extractive sector in Liberia (EITI reports)



Source: Raw data provided by EITI country reports.

²⁴ The final report of the “Scoping Study on the Mining Sector”, prepared by MAC-Africa Consultants Inc. and submitted to Liberia EITI on September 8, 2015, is available at the following address: https://www.leiti.org.lr/sites/default/files/documents/scopin_study_leiti_final_report.pdf

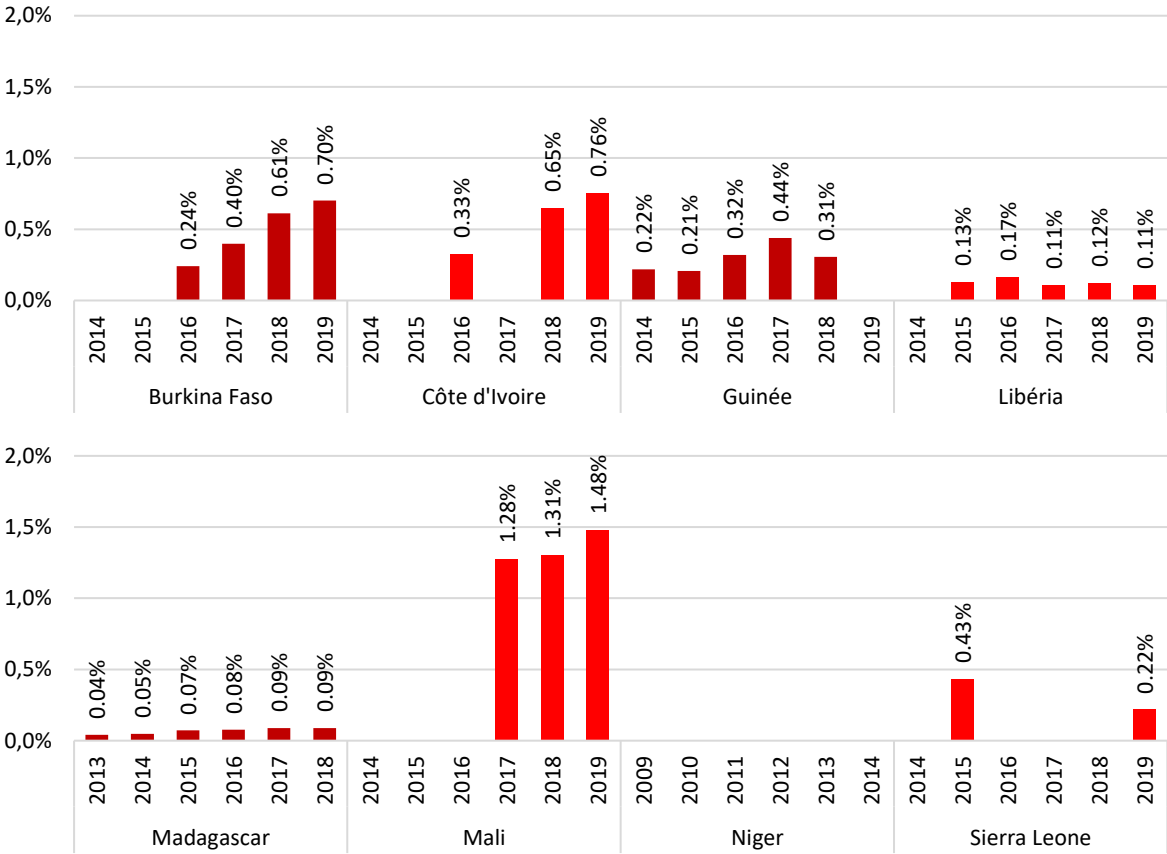
Graph 26: Total employment or labor force in Liberia (EITI reports, World Bank)



Sources: Raw data provided by EITI country reports. Raw data provided by the World Bank (WB).

In terms of employment at the macroeconomic level, it therefore appears that it is very difficult to make the data truly comparable. The accounting methods for extractive sector employment vary too widely between countries, years, and data sources. It is only possible to attempt to provide a very imperfect estimate of direct employment in the industrial mining, oil and gas sectors. The macro-level employment data provided were considered sufficiently relevant to be retained for Burkina Faso, Cote d'Ivoire, and Mali. Whereas only the total number of jobs reported by companies at the micro level could be used in Guinea, Liberia, Madagascar and Sierra Leone, which necessarily implies an underestimate compared to the three previous countries. In any case, we must be very careful with these figures for employment in the industrial extractive sector, which were then related to the labor force measured by the World Bank. Despite these adjustments, the results obtained are probably only slightly satisfactory. Nevertheless, they undoubtedly make it possible to improve comparisons very significantly, given the extremely heterogeneous raw data published by the EITI.

Graph 27: Share of extractive sector jobs in the labor force (authors)



Source: Authors' compilations and calculations based on data considered the most reliable to ensure better comparability.

III. Conclusion

The EITI data used as examples concerning value added, production, and employment highlight important and very frequent comparability problems that it is necessary to try to correct. The requirements of the EITI Standard have evolved but they are not sufficiently precise to allow all countries to adopt the same calculation methodology, especially as the data available within each country certainly limits the possibilities of harmonization. The levels of information disaggregation are not always the same, or even specified, in terms of scale (industrial or artisanal) or sector (mining, oil, gas, agriculture, fish farming, or forestry). Data sources can vary greatly between countries and years, which can lead to aberrant discrepancies and sudden breaks in trends. Revaluations of the same data from one year to the next also occur. In the case of production, differences in reconciliation can be observed between the declarations of the companies and those of the State. In addition, many other difficulties have been observed, such as between current and constant monetary values, as well as between units of measurement and their conversions. Finally, it is very rare that the major ratios presented at the beginning of the report (contributions of the extractive sector to GDP, government revenues, exports, and employment) are comparable a priori without in-depth corrections.

In conclusion, the construction of a transnational and multi-year EITI database is possible, but it only makes sense if it is accompanied by real analysis and data reprocessing in order to be able to offer the general public information that is sufficiently comparable and harmonized to be directly and easily used. The wealth of the numerous information published by the EITI is a response to the need for economic and fiscal data expressed by stakeholders to analyze the extractive sector in developing countries, particularly on the African continent. However, in order to be easily exploited by an individual or a program, this information must be organized in the form of a true relational database. This approach would be fully in line with the EITI's ambition to enable "users to focus on analyzing and responding to information, rather than just collecting and verifying it" (Foreword to the EITI Standard, 2019). This new step in the creation of an EITI database seems increasingly essential. But it must be accompanied by real in-depth work to ensure the quality of the data. Simply collecting and copying the raw data from the EITI reports would not meet the desired objective because the database would contain too many problems and errors. It would be little used because the raw data are too difficult to compare and use a priori. For past years' data, the construction of an EITI database must, therefore, be accompanied by real analysis and data reprocessing in order to eliminate aberrations, homogenize the variables, and improve the comparability of the data. For future years' data, it would also be beneficial if a real common methodology were to be put in place to complement the EITI standard in order to harmonize the practices of EITI teams.

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