AFROSAI-E

Extractive Industries Audit Guideline

3rd Edition

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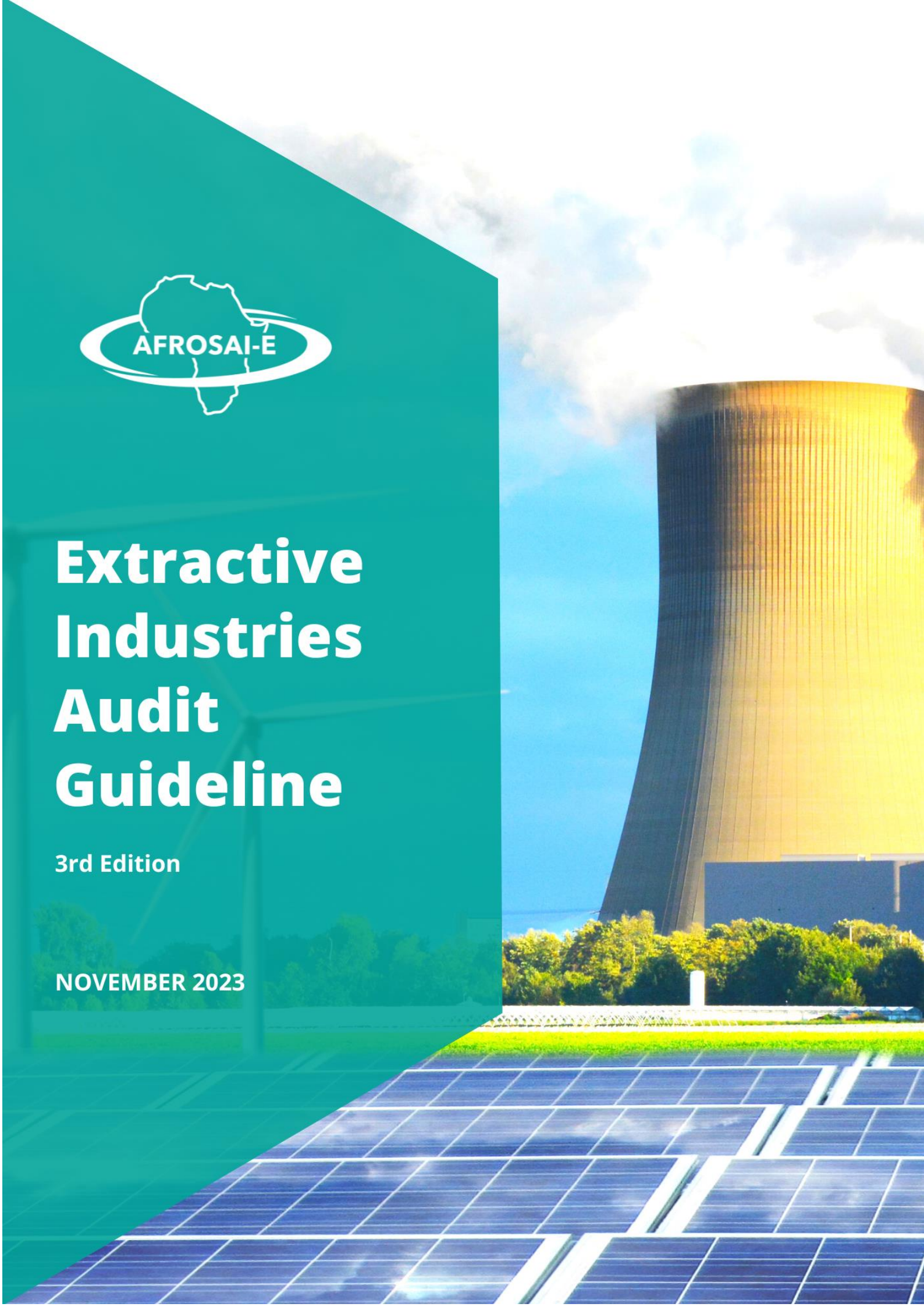

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Contents

List of abbreviations

ABFA	Annual Budget Funding Amount
ACA	Anti-Corruption Authority
AFROSAI-E	African Organisation of English-speaking Supreme Audit Institutions
AMDC	African Minerals Development Centre
AML	Anti-money laundering
AMV	Africa Mining Vision
ASYCUDA	Automated System for Customs Data
ASM	Artisanal small-scale mining
ASSL	Audit Service Sierra Leone
ATAF	African Tax Administration Forum
AU	African Union
CAM	Compliance Audit Manual
CGT	Capital gains tax
CISO	Chief Information Security Officer
CIT	Corporate income tax
CP	Corruption perception
CSO	Civil society organisations
CUP	Comparable Uncontrolled Price
DTA	Double taxation agreements
EHS	Environmental, health and safety
EI	Extractive industries
EIA	Environmental impact assessment
EITI	Extractive Industries Transparency Initiative
ERP	Enterprise Resource Planning (software)
ESG	Environmental, Social and Governance
ESHIA	Environmental Social Health Impact Assessment
ESIA	Environmental and Social Impact Assessments
ESMP	Environmental and Social Management Plans
ETM	Energy Transition Minerals
FAM	Financial Audit Manual
FATF	Financial Action Task Force
FTT	Financial transaction tax
G&G	Geological and Geophysical
GAAP	Generally Accepted Accounting Principles
GAAR	General anti-avoidance rule

GDP	Gross domestic product
GFI	Global Financial Integrity
GHF	Ghana Heritage Fund
GHG	Greenhouse gas
GL	General Ledger
GNPC	Ghana National Petroleum Company
GPF	Ghana Petroleum Fund
GPHF	Ghana Petroleum Holding Fund
GSD	Geological Survey Department
GSF	Ghana Stabilisation Fund
HR	Human Resources
HSE	Health, Safety, Environment
ICMM	International Council for Mining and Metals
ICT	Information, Communication and Technology
IEA	Information exchange agreements
IFFs	Illicit financial flows
IFMIS	Integrated Financial Management Information System
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
IOC	International oil company
IPCC	Intergovernmental Panel on Climate Change
ISSAI	International Standards of Supreme Audit Institutions
IT	Information Technology
JV	Joint venture
LNG	Liquefied Natural Gas
MNE	Multinational entity
MOSES	Mineral Output Statistical Evaluation System
MP	Members of parliament
MSG	Multistakeholder steering group
NOC	National oil companies
NOGTR	National Oil and Gas Talent Register
NPD	Norwegian Petroleum Directorate
NRGI	Natural Resource Governance Institute
OECD	Organisation for Economic Cooperation and Development
OAGN	Office of the Auditor General of Norway
PAU	Petroleum Authority of Uganda
PAM	Performance Audit Manual
PAYE	Pay as you earn

PEP	Politically exposed persons
PIAC	Public Interest and Accountability Committee
PRMA	Petroleum Revenue Management Act
PSA/PSC	Production sharing agreement/contract
PSM	Profit Split Method
PwC	Pricewaterhouse Coopers
Q&A	Questions and Answers
RPM	Resale Price Method
RGI	Resource Governance Index
SAI	Supreme Audit Institution
SAP	System Analyses Program Development
SDG	Sustainable development goals
SDoM	State Department of Mining (Kenya)
SLEITI	Sierra Leone Extractive Industries Transparency Initiative
SME	Small and medium-sized enterprises
SOE	State-owned enterprises
SQL	Structured Query Language
SSA	Sub-Saharan Africa
TNMM	Transactional Net Margin Method
TP	Transfer pricing
TSC	Technical Service Contracts
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
WGEI	Working Group on Audit of Extractive Industries
XRF	X Ray Flourescence (Hand held device used to detect mineral contents
ZRA	Zambian Revenue Authority

1. Purpose and use of the Extractive Industries Guideline

The mining sector has been identified by most countries globally, including member countries of AFROSAI-E, as a potential catalyst for economic development, and there is a determined effort to develop the sector and make it more attractive to investors. Minerals account for seventy per cent of African exports and almost thirty per cent of GDP (AfDB, 2015). Revenues from extractives account for as much as seventy per cent of total revenues for some large oil and gas-producing countries.

Africa alone holds around thirty per cent of the world's mineral reserves, twelve per cent of the world's oil reserves and eight per cent of the world's natural gas reserves.[1] Yet, for the millions of people living in resource-rich countries in Africa, oil, gas, and mining have largely failed to deliver on the promise of a better quality of life. This failure reflects ineffective policies and legal frameworks, weak institutions, huge implementation gaps between policy and practice, widespread corruption and state capture.

As AFROSAI-E, when we consider what success looks like to all stakeholders in the extractive industries, especially our member SAIs and the citizens of their countries. It is our experience that transparency and accountability through the audits of the SAI assets of any mining, oil and gas project or operation are ready for a successful outcome.

Auditing extractive industries (EI) have received increased attention in recent years, both within the INTOSAI community and other international forums. Strong and effective SAIs can contribute to better and more transparent oversight of EI and help ensure that governments manage natural resources in the public's best interest. There are several initiatives[2] to strengthen SAIs' ability to fulfil this function.

This *Guideline on Audit Considerations for Extractive Industries* is AFROSAI-E's initiative and contribution that can assist the SAIs in auditing the EI and strengthen SAIs' ability to fulfil this function.

A country's natural resources, such as oil, gas, metals, and minerals, belong to its citizens. Extraction of these resources can lead to economic growth and social development. However, poor governance of natural resources has often led to corruption and conflict. More transparency and public scrutiny of how wealth from a country's extractive sector is used and managed is necessary to ensure that natural resources benefit all.[3]

[1] Our work in Africa | UNEP - UN Environment Programme
[2] INTOSAI's Working Group on the Audit of Extractive Industries (WGEI) is an example of such initiative, ref. wgei.org
[3] Source: eiti.org

About 3.5 billion people live in countries rich in petroleum (oil and gas) or minerals. With good governance and transparent management, the revenues from EI can have an impact on reducing poverty and boosting shared prosperity while respecting community needs and the environment.[4]

With its wealth of minerals, mining companies worldwide seek growth opportunities. Africa has become a choice for many, with over 1,800 mining projects in various stages of development or operation across the mother continent. Miners, investors, and governments all strive to overcome many challenges to succeed. The issue of beneficial ownership transparency is at the heart of some of these challenges.

Before we can move on to the purpose of this guideline, it is important to have a common understanding of the meaning of the expression *extractive industries*.

Definition of extractive industries:[5] Any process involving non-renewable resource extraction. The extractive industry consists of any operations that remove oil, gas, metals, minerals, and aggregates from the earth or sea. Three important features characterise these industries:

- Permission to extract/exploit a limited natural resource gives the opportunity to generate super profit (monopoly/oligopoly). Most countries adhere to the principle that limited natural resources belong to the Government/people and hence earn the lion`s share of the generated super profit.
- Extraction of petroleum and minerals involves high costs, advanced technology, and high-risk.
- The commodities extracted can be sold in a global market, thus creating a risk of tax evasion, including transfer pricing.

Because of these unusual characteristics and the way petroleum and minerals differ from the extraction of other natural resources, they are the sole focus of this guideline. In addition, relevant international bodies such as the INTOSAI Working Group on Audit of Extractive Industries (WGEI), the World Bank, the Extractive Industries Transparency Initiative (EITI) and Natural Resource Governance Institute (NRGI) limit their definition of extractive industries to petroleum and minerals.

1.1. Purpose

In line with INTOSAI – P 12, SAIs need to be able to add value to society and make a difference in the lives of citizens by carrying out audits of the EI sector. To ensure that elected officials act in the best

[4] Source: Wordbank.org.
[5] This definition is in line with the definition from EITI, which states that extractive industries "usually refers to the oil, gas and mining industries". Source: eiti.org.

interests of the citizens they represent, governments and public sector entities must be accountable for their stewardship over and use of public resources. SAIs strengthen accountability, transparency and integrity by independently auditing public sector operations and reporting on their findings.

Accountability and transparency are two important elements of good governance. When consistently applied, transparency is a powerful force that can help fight corruption, improve governance, and promote accountability.

The concept of accountability refers to the legal and reporting framework, organisational structure, strategy, procedures, and actions to help ensure that the SAIs meet their legal obligations regarding their audit mandate and required reporting within their budget.

The purpose of this guideline is to assist SAIs mandated with auditing the public sector management of extractive industries with capacity building, understanding the sector, mapping the sector and conducting risk assessment along the AFROSAI-E's EI value chain.

Regarding their mandate, SAIs must give assurance on the information reported and audit the systems, processes and actual revenue collections relating to natural resources. SAIs also play an important role in assuring the accountability of government institutions involved in regulating and monitoring EIs.

These responsibilities require understanding concepts related to EI, country-specific environments, and international good practices. Extractive industries are important to government auditors because an endowment of natural resources can significantly impact a country. However, they require a great deal of regulation and a highly skilled bureaucracy to manage the regulation of those industries.

The main strategic objective of the guideline is to provide SAI auditors with the latest but relevant developments in the EI sector to enable SAI auditors to perform quality and impactful audits in the EI sector of their countries. The guideline achieves this objective by providing background information, examples and illustrations relating to the public sector auditor's areas of interest in countries with an extractive sector with significant profit sharing between governments and the private sector.

1.2. How SAI auditors should use this guideline

Auditors should use this guideline depending on the nature and scope of the audit to be undertaken. The guideline, throughout its various chapters, assists the auditor in determining the nature of the audit. This is achieved by identifying and responding appropriately to identified risks.

Using Chapter 2 and Annexure 7 templates, auditors can sufficiently document the risk assessment and responses at national and engagement levels. The EI audits may be conducted as performance, compliance, or financial audits depending on the subject matter and risk assessment. In addition, considerations highlighted in Chapter 3 of this guideline relating to EI should also be considered.

Most SAIs audit the financial statements of government entities annually. When such financial statements include revenue and/or expenditure relating to EI, these amounts should be identified for audit. During the audit of financial statements, the provisions and templates of the Financial Audit Manual (FAM) should be followed.

Likewise, compliance audit or performance audit methodology should be applied when relevant by following the audit steps (planning, executing, and reporting) and templates provided in the Compliance Audit Manual (CAM) and Performance Audit Manual (PAM).

1.3. Background on the extractive industry sector

1.3.1. Extractive industries

As mentioned earlier, EI refers to the petroleum and mining sectors in this guideline's context. The following paragraphs highlight key information on the sectors and the latest developments in Africa.

Petroleum[6]

Oil and natural gas are *hydrocarbons,* strings of carbon and hydrogen formed from organic material compressed over millions of years. Generally, oil and natural gas are referred together as **Petroleum.** They are often located together. If a reservoir (area underground) has only gas and no oil, it is called non-associated gas. If a reservoir contains both oil and gas, the gas it contains is called associated gas.

What is often extracted is not a form of petroleum that can be used immediately. For it to be the fuel that can go into a car or be converted into plastics, it must go through a process of refining. To understand and select audit subject matters, we should examine the oil and gas value chain divided into upstream, midstream, and downstream.

[6] *The Oil and Gas Industry.* NRGI Reader. April 2021

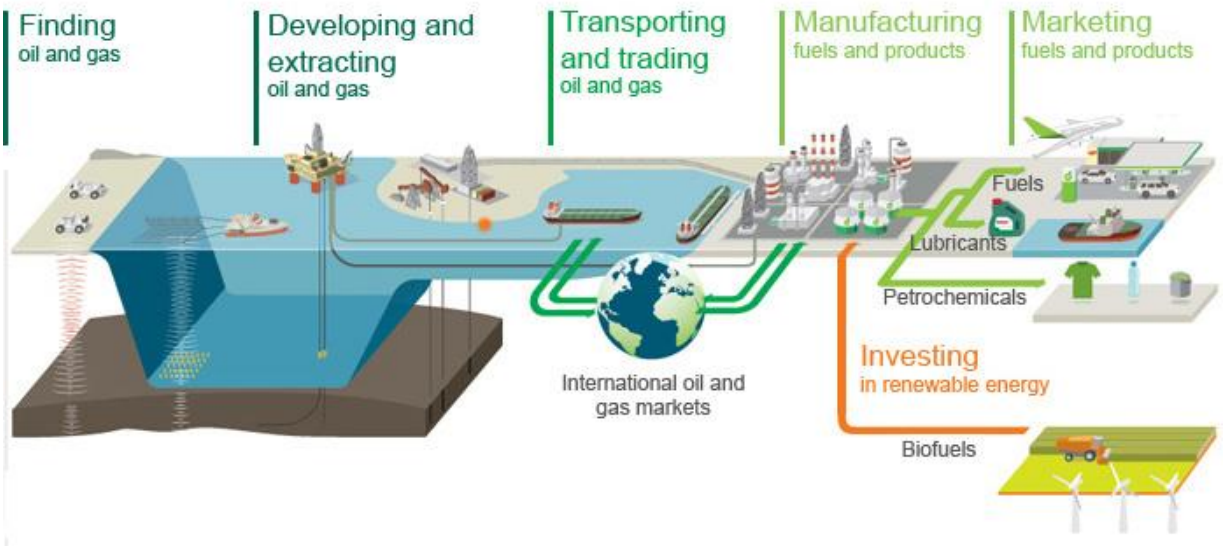

Figure 1: Petroleum value chain

In upstream and downstream, the activities are focused on exploration and extraction. Downstream includes refining, marketing, and end-use. Transportation between upstream and downstream is often referred to as midstream.

Mining

Mining is the extraction of minerals from the earth. Mining can either be large-scale, small-scale or artisanal. *Large-scale mining* is often undertaken by big corporations using sophisticated equipment and a huge labour force. The mining operations occur at large sites and continue until the mineral or metal is completely excavated.

Artisanal mining refers to mining by individuals, groups, families, or cooperatives with minimal or no mechanisation, often in the informal sector of the market. Artisanal and small-scale mining (ASM) generates about fifteen per cent of the world's nonfuel minerals, yet they are major sources of income for about 100 million people globally.

Much audit focus has been concentrated on large-scale mining, yet statistics indicate that more people, globally and in Africa, are involved in artisanal mining. Artisanal mining faces challenges due to mining in the informal sector with minimal or no mechanisation and minimal regulation. Large-scale mining is usually well-organised and potentially less risky than artisanal mining. **Annexure 1** identifies areas in artisanal mining where auditors can focus their audits, depending on the risk assessment.

The mining process begins with the exploration and discovery of mineral deposits and continues through ore extraction and processing to the closure and remediation of worked-out sites.

Figure 2: The mining process lifecycle[7]

It is fundamental for auditors to understand the mining lifecycle and activities involved in each stage to identify areas where they can conduct audits that will lead to proper management of the mining sector in their respective countries.

1.3.2. Extractive industries in Africa

According to the UN, Africa is home to some thirty per cent of the world's mineral reserves, twelve per cent of the world's oil reserves and eight per cent of the world's natural gas reserves. Africa has the world's largest cobalt, diamonds, platinum and uranium reserves[8]. Therefore, The EI sector is a major source of revenue in many African countries, playing a crucial role in economic, social and environmental aspects. Today, there are still undiscovered resources in the African region, as well as a need to build the capacity of institutions to ensure that citizens benefit from the country's natural resources.

In the early 2000s, an increase in discoveries throughout the African continent emerged. Barely a month goes by without discovering new oil or mineral resources in Africa. Only five of the continent's fifty-five countries are neither producing nor exploring for oil and minerals. Improvements in exploration technology and economic stability in Africa have induced oil and gas companies to begin exploring the region.[9] The oil and gas industry in Africa continues to show substantial growth.

[7] CAAF Guide to Auditing Mining Revenues and Financial Assurances for Site Remediation, July 2021
[8] Our work in Africa | UNEP - UN Environment Programme
[9] *The Oil and Gas Industry.* NRGI Reader. April 2021

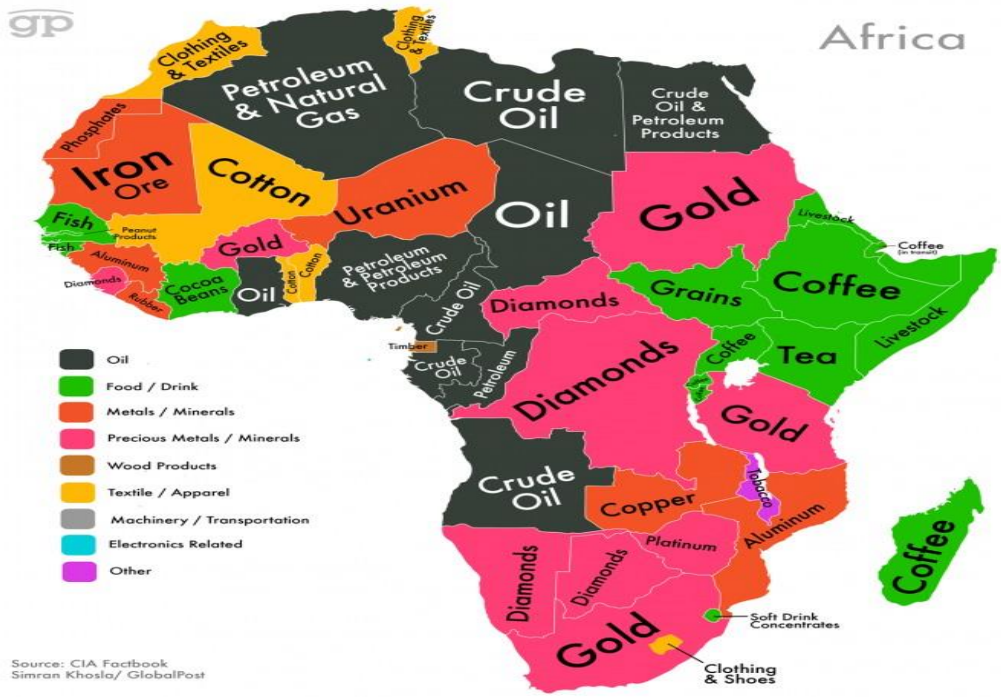

Figure 3: Extractive industries in Africa[10]

A resource bonanza is in train across the continent, generating big government revenues and real benefits for Africans.

The endowment of natural resources imposes some implications and challenges for resource-rich countries. However, a significant share of these resources is used unsustainably. Illegal activities negatively affect other resources, meaning the benefits generated from these resources are reduced over time. For instance, Africa loses an estimated USD 195 billion annually of its natural capital through illicit financial flows, illegal mining, illegal logging, illegal trade in wildlife, unregulated fishing and environmental degradation and loss.[11] In emerging petroleum and mineral-producing countries, there is an ongoing process to design the management of the EI sector, i.e., establishing a new legislative framework governing the sector and new agencies, acquiring technologies and relevant competence.

In many cases, the challenges in EI are geopolitically driven. Moreover, price fluctuations are crucial to consider because they affect resource revenues and the direction of the industry. **Annexure 1** provides detailed background on the main features of the petroleum and mining environment and describes current and futuristic perspectives of developments in the industry, citing various examples from the African continent.

[10] Al Jazeera
[11] Our work in Africa | UNEP - UN Environment Programme

2. Public sector audit of extractive industries

2.1. Introduction

Audit of extractive Industries is not a particular type of audit. However, the auditor is required to apply the ISSAIs and audit methodology according to the audit type that will carry out the EI audit. As mentioned previously, the EI guideline primarily aims to guide the auditor to conduct a risk assessment at a high-level and assist the auditor in considering various audit considerations while conducting the risk assessment. The SAI mandate typically dictates the type of audits that should be performed, according to the SAI mandate and, at the same time, provides a choice to some extent for the SAI management to make decisions on auditing specific areas and topics.

When the SAI has identified the risks along the EI value chain and identified which audit type will be responsible for performing a particular audit or subject matter, it should be incorporated in the SAI overall audit plan, both annual and long-term, e.g., five years. The audit topics/subject matters should also be ranked according to the risk level and the significance for the country's citizens. For example, SAI Uganda has produced an Energy and Extractive Industries strategic plan for 2016-2021 (ongoing update), including the EI risk assessments, types of audits, timings and skills set required.

As per ISSAI 100.17, the public sector audit environment is one in which governments and other public sector entities exercise responsibility for using resources derived from taxation and other sources to deliver services to citizens and other recipients. These entities are accountable for their management and performance and for the use of resources, both to those who provide them and to those, including citizens, who depend on the services delivered using them.

Most SAIs conduct financial audits per their SAI mandate, focusing on determining whether an entity's financial information is presented per the applicable financial reporting and regulatory framework. The SAIs are expected to apply financial audit methodology per ISSAIs 2000-2999 described in FAM and the related working papers. If the SAI has identified risks in EI that need to be addressed through performance audit the focus should be on whether interventions, programmes and institutions are performing in accordance with the principles of economy, efficiency and effectiveness and whether there is room for improvement. The performance audit methodology in PAM and ISSAI 3000 should be applied. If the SAI has identified risks in EI that need to be addressed through compliance audit, the focus should be on whether the subject matter complies with authorities whose job is to satisfy identified criteria. Compliance auditing is performed by assessing whether activities, financial

transactions and information are, in all material respects, in compliance with the authorities that govern the audited entity. Compliance Audit Methodology in CAM and ISSAI 4000 should be applied.

2.2. AFROSAI-E's value chain model for extractive industries

SAIs form part of an overall legal and constitutional system within their respective countries and are accountable to the parliament and the public. SAIs are also responsible for planning and conducting the scope of their audits and using proper methodologies and standards to ensure that they promote accountability and transparency over public activities, meet their legal mandate and fulfil their responsibilities in a complete and objective manner.[12] For SAIs to audit the EI sector efficiently and effectively, auditors need to understand the concept of the EI value chain. AFROSAI-E has developed and updated the generic EI value chain to assist auditors with understanding and identifying potential risks in each step. AFROSAI-E'S EI value chain comprises seven steps, some of which are interrelated, as illustrated in Figure 4.

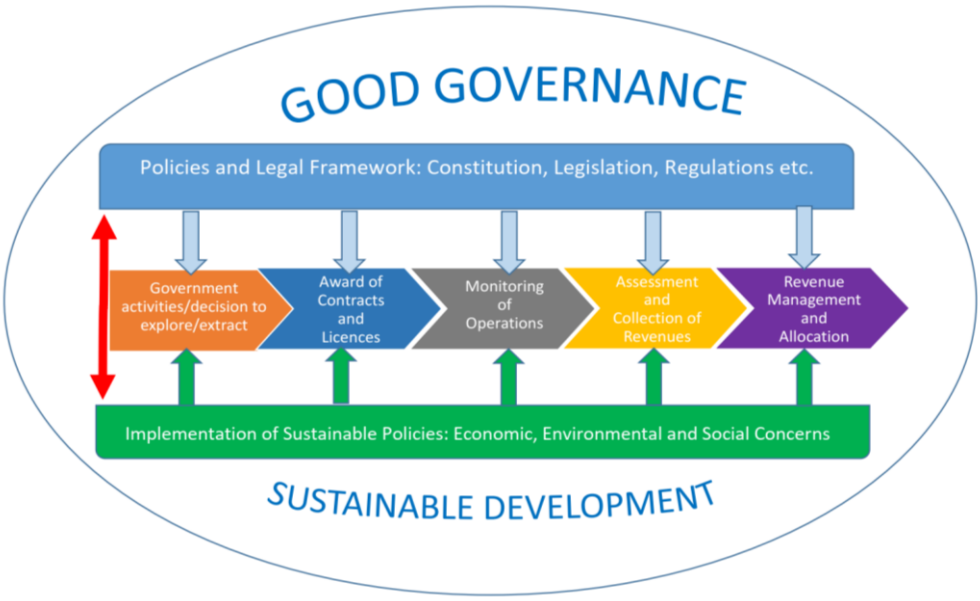

Figure 4: AFROSAI-E'S generic value chain for the extractive industries

2.2.1. Steps in the EI value chain

The following gives a summary of the value chain:

1. Policies and Legal framework: The government must establish a hierarchy of laws, regulations and policies governing the EI sector. There should be consistency between these sources of law, and they should cover all stages in the EI value chain.

[12] ISSAI 20 Principles of transparency and accountability

2. Government activities/decisions to explore/extract: The legislative branch of government needs to make policy decisions on whether to open areas for exploration based on recommendations by the executive. There should be indications of possible reserves; environmental impact assessments should be carried out, and relevant government institutions should be established. The government might decide to extract if the exploration indicates potential for substantial natural resources.
3. Award of contracts and licences: The government needs to decide on a fiscal regime that will regulate the EI operations, oversee the use of contracts or law and decide whether there should be competitive bidding between international petroleum/mining companies.
4. Monitoring of operations: After production has commenced, the government should monitor the companies' activities in several areas, including Health, Safety, Environment (HSE), production volume, work programmes, etc.
5. Assessment and collection of revenues: The government needs to manage various sources of EI revenue effectively. Revenue may be collected through royalties, taxes, bonuses, shareholding, etc. Some of these instruments are susceptible to tax evasion, which needs to be tackled by competent revenue authorities.
6. Revenue management and allocation: After collecting EI revenue, the government must allocate it for different purposes. The revenue could be used for spending purposes in next year's budget or saved for future generations.
7. Implementation of sustainable policies: The extractive industries also have the potential to harm. Therefore, the government must ensure that the activities benefit local businesses and not lead to environmental damage or non-sustainable overspending. The EI should benefit society more than just by earning revenue from selling commodities. Provision should also be made for decommissioning by ensuring that adequate resources are allocated for this purpose.

2.2.2. Good governance

SAIs should ensure that entities in the extractive industry adhere to environmental, social, and governance (ESG) regulations. The environmental and social part of ESG is covered in the sustainability chapter. In this chapter, we will focus on governance and good governance.

Governance can refer to several issues regarding corporate management (i.e., leadership, executive pay, audits, internal controls, shareholder rights, etc.). This can include transparency, conflict of interest policies, internal structure, and external relationships. For example, companies typically have internal conflict of interest policies to prevent the company's management from awarding contracts based on personal ties rather than merit.

Governance in the extractive industries is commonly used to refer to how public institutions and private companies conduct their affairs and manage resources.[13] It covers the process of decision-making as well as the processes whereby decisions are implemented. Transparency and accountability are central to the concept of 'good governance'. Disclosure of information and transparent decision-making processes enable citizens and other stakeholders to scrutinise actions and hold governments and other stakeholders, such as companies, accountable for their activities in the EI sector. The former United Nations Secretary-General Kofi Annan put it succinctly when he said: "Good governance is perhaps the single most important factor in eradicating poverty and promoting development." Turning words into deeds, however, requires governments across the continent to accept that without accountability, transparency, zero tolerance of corruption, meaningful citizen participation and commitment to the rule of law, the SDGs and Agenda 63 goals will remain elusive.[14]

This section of the guideline aims to give the auditor an insight into the principles and functions of good governance in the EI as they are a fundamental consideration in audit risk assessment, in conjunction with the nine principles of ISSAI-P 20: 'Principles of transparency and accountability'.

The principles of good governance

According to the UNESCAP article, good governance[15] has eight major characteristics. It is participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimised, that the views of minorities are taken into account and that the voices of the most vulnerable in society are heard when decisions are made. It is also responsive to the present and future needs of society. Auditors may also consider the five high-level principles developed by Chatham House in their guideline for good governance in Emerging Oil and Gas Producers[16] when developing criteria, measures, and expectations that form the basis of the excellent governance guidelines in the EI sector, as listed below:

- Clarity of goals, roles, and responsibilities.
- Sustainable development for the benefit of current and future generations.
- Enablement to carry out assigned roles.
- Accountability of decision-making and performance, and
- Transparency and accuracy of information.

[13] www.icmm.com
[14] Editorial - Good governance is inclusive - Good Governance Africa
[15] What is Good Governance? by United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
[16] Chatham House is a world-leading policy institute with a mission to help governments and societies.

Good Governance indicators

It is useful for auditors to familiarise themselves with how highly their countries score regarding good governance indicators. This enhances their understanding of their countries and where their focus should be to improve scores. In the year 2021, AFROSAI-E member countries showed increasing divergence in Overall Governance Performance, according to the Ibrahim Index of African Governance (IIAG)[17], The Corruption Perception Index (CP)[18] of Transparency International and The Resource Governance Index country scores (RGI)[19] and rankings. Table 1 lists the AFROSAI-E member countries' scores for these indices.

Table 1: AFROSAI-E member countries scores for different governance indices

	Score out of 100 (100 = best)		
Country	**CPI (22')**	**IIAG (21')**	**RGI (21')**
Angola	33	41,5	N.A.
Botswana	60	68.1	N.A.
Eritrea	22	25.9	N.A.
Ethiopia	38	46.0	N.A.
Gambia	34	55.3	N.A.
Ghana	43	64.8	78 (oil and gas) 69 (mining)
Kenya	32	58.7	N.A.
Lesotho	38	54.9	N.A.
Liberia	26	48.8	N.A.
Malawi	34	54.6	N.A.
Mauritius	50	74.9	N.A.
Mozambique	26	48.6	N.A.
Namibia	49	64.1	N.A.
Nigeria	24	47.7	53 oil
Rwanda	51	59.1	N.A.
Seychelles	70	73.4	N.A.
Sierra Leone	34	52.2	N.A.
Somalia	12	23.2	N.A.
South Africa	43	67.7	N.A.
South Sudan	13	18.5	N.A.
Sudan	22	34.5	N.A.
Eswatini	30	43.9	N.A.
Tanzania	38	53.4	55 (oil and gas) 58 (mining)
Uganda	26	47.5	49 (oil and gas) 55 mining
Zambia	33	50.0	N.A
Zimbabwe	23	48.1	N.A.

IIAG: Ibrahim Index of African Governance (2021)

RGI: Resource Governance Index (2021)

CP: Corruption Perception Index (2022)

[17] 2022_Country_Scorecards.pdf (iiag.online)

[18] https://www.transparency.org/en/cpi/2021

[19] https://resourcegovernance.org/analysis-tools/publications/2021-resource-governance

2.2.3. Sustainable development

As described in the EI value chain in Figure 4, the EI sector's activities and revenues should lead to the sustainable development of resource-rich countries. Sustainable development means having a holistic approach to our society, which considers the desire for economic development, including local content, social inclusion, and environmental sustainability.

Sustainable development meets the needs of the present without compromising the potential of future generations to meet their own needs. Sustainable development is about integrating the goals of high quality of life, health, and prosperity with social justice and maintaining the earth's capacity to support life in all its diversity presently without compromising the potential of future generations.[20]

Security, accountability and good governance are of intrinsic value and are important in facilitating economic development in all countries. Research shows that resource wealth positively affects growth in countries with good institutions but harms those with poor institutions.[21]

Government institutions have a leading role to play in this regard. Some stakeholders within the government perform this role by crafting adequate and suitable legal frameworks, monitoring the activities in the EI sector, and ensuring that the correct amount of revenue is collected and allocated to activities that lead to sustainable development. Such sectors could include, for example, education, health, infrastructure development and protection of the environment.

The SAIs' role is to audit to ensure that the government, through the ministries, the agencies and the state-owned companies, follow-up on what is expected of them. The SAIs should have a holistic approach to auditing by mapping the EI sector, identifying the various role players and their activities, assessing the risks along the EI value chain (especially focusing on the areas where the risk is high) and ensuring they conduct high-impact audits. By auditing the EI sector, the SAIs can contribute to raising more awareness and conducting audits that will benefit the citizens of natural resource-rich countries.

2.3. Conducting risk assessment along the EI value chain

A SAI may decide to focus audit attention by identifying audit subject matters relating to EI. The audit may cover one or more of the seven steps of the EI value chain. Chapter 3 provides a holistic overview of the seven steps to facilitate this approach, explaining typical issues, risks, controls, and related high-

[20] https://miningwithprinciples.com/
[21] EU Working Paper: Natural Resources and State Fragility RSCAS 2010/36

level audit considerations. Auditors should remember that the seven steps described in Chapter 3 form part of a single process. Auditors are then expected to respond to the risks using financial, performance or compliance audits. The risk identification tool is covered in Chapter 2.3.1.

Note: Generic risks and controls identified in this guideline should not be considered complete. In each audit, the relevant legislative framework and contracts will determine additional or alternative controls which should be considered during the audit. The templates in this guidance are meant to be used as a starting point and should be amended to suit the audit objectives and the audited environment.

The EI generic value chain is applied to map the EI sector and to assess risks along the value chain's steps, as explained in Chapter 3.

Risk is the probability that incidents may occur and negatively affect the achievement of objectives. ISSAI-P 20, Principle 3 requires SAIs to communicate the scope of audit activities that they undertake under their mandate based on their risk assessment and planning processes. Risk assessment in the EI sector involves a systematic process of evaluating country-specific potential risks for each step in the EI value chain. The risks are identified from an audit perspective, as SAIs are expected to identify audits that must be performed to respond to identified risks.

Identifying key players is an essential part of the risk assessment process, as it ignites the process of identifying potential auditees where the auditor has the jurisdiction to perform risk-based audits in line with the ISSAIs. The identification of key players includes the following corroborative questions:

- Who are the key players in the sector?
- How are they involved in the sector?
- When are their roles required?
- What are their risks in the sector?
- What are their key financial interactions/transactions?

Template 1 (in Annexure 7) may assist the auditor in mapping the EI sector in a particular country to identify the risks.

KEY:

Risk factor/indicator: A condition, attribute, or characteristic that increases the likelihood of a risk, for instance, lack of transparency in awarding contracts.

Risk: It is a fact that incidents may occur and affect the achievement of objectives negatively; for instance, in the risk factor identified above, one of the risks could be the possibility of licences being granted to speculators.

2.3.1. Risk mapping

After identifying risks using the risk assessment Template 1, auditors must prioritise the risks to focus on high-risk areas. Prioritising is essential as the SAI might not have the time and resources to simultaneously respond to all the risks. A risk chart assesses the likelihood and impact of identified risks and prioritises the significant risks. The risk chart is illustrated in Figure 5.

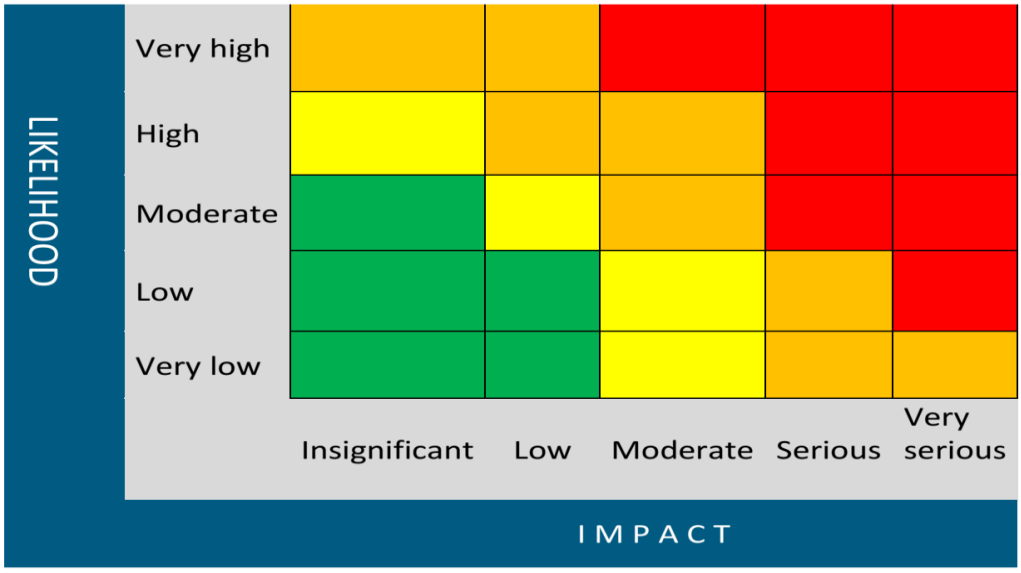

Figure 5: Risk chart

The auditor needs to assess the likelihood of risk in the EI sector along the EI value chain and its impact if the identified risk occurs. Likelihood, impact and overall risks must be ranked using the risk mapping chart in Figure 5. However, it is insufficient to rank risk as high, medium, or low; auditors must justify the ranking by describing it in Template 2 (see Annexure 7). AFROSAI-E has developed Template 2 both in Word and Excel. This template is a tool for the auditors/SAIs to facilitate in prioritising and responding to the risks identified. Below is an extract of the Excel version of Template 2, 'Risk mapping matrix'.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Prepared by:	(for example) EI Sector Monitoring Group or EI Working Group									Date last updated:		
2						Riskrating					Reviewed by:		
3	Entity:	Step in the EI Value Chain	Risk indicators	Key Risks	Controls addressing the risks	Likelihood	Impact	Overall risk assessment	Existing controls that mitigate risks	Audit topic	Audit type	Responsible unit	When the audit will be done
4		Legal Framework											
5		Government activities/decision to explore/ extract											
6		Award of Contracts and Licences											
7		Monitoring of Operations											
8		Assessment and Collection of Revenues											

Likelihood should be described by giving examples and reporting how many incidents you have observed for a particular risk. For example, if the legislation is outdated, there should be evidence of this; the auditor must identify which laws and regulations are outdated. If the majority of the laws are outdated and are not keeping up with the development in the sector, that will guide the auditor towards ranking it. Likewise, a description of the **impact** is required to justify the ranking. The auditor must ask - What impact has the outdated legislation had? Is it monetary or environmental degradation, and/or is it affecting the citizens/communities in the mining areas or oil platforms? After describing the likelihood and impact, the risk chart will guide auditors in determining the overall risk assessment and ranking it as critical or high. In this way, it guides the auditors to prioritise the significant risks that will have a high-level impact if they materialise.

After ranking the risks, they are «inserted» in the risk chart shown in Figure 5. You can then read from the colour codes below, e.g., to see if the risk is «critical or high». However, the auditors must also apply their professional judgement in risk ranking.

2.3.2. Risk mapping process

Now that the auditor understands how to apply the concept of risk assessment described in Chapter 2.3.1, the next step is the risk mapping process. There are several ways to approach it. The key here is that he/she should first understand the sector and the entities the SAI is auditing. Information gathering can be done by organising a multistakeholder workshop where all the relevant stakeholders are invited to provide information and describe the risks from their perspective. For example, the stakeholders could include the Ministry of Mines, Ministry of Energy, Ministry of Oil and Gas, Ministry of Finance, Ministry of the Environment, relevant State-owned enterprises, revenue authorities, oversight bodies, civil society organisations (CSOs) and Academia. Auditors from all audit types (financial, compliance and performance audit) should participate in this kind of workshop.

AFROSAI-E has assisted several SAIs and facilitated 'Multistakeholder engagement and risk assessment workshops'. In this one-week workshop, the first two to three days are usually dedicated to presentations from the external stakeholders, panel discussions and Q&A sessions. The rest of the week is dedicated to auditors, who then process the information received, identify the risks along the EI value chain, assess and rank the risks and finally identify the audit topics that emerge from the exercise. This is done through group work, where the teams are divided randomly, and they then map the stakeholders and identify risks along each step of the value chain. For example, one group may work

with a ‘legal framework’, and other groups would work on identifying the risks arising from the ‘award of contracts’, ‘revenue collection’, etc.

The groups can also be divided entity-wise. For example, one group or team could identify and rank the risks related to the Ministry of Mines, and another could examine risks related to revenue authorities. The groups assess risks along all the seven steps of the EI value chain per entity. The concept to apply depends on many factors, such as how much information the SAI gathered before the workshop. In general, SAIs will benefit from mapping the relevant stakeholders and conducting risk assessments along each step of the EI value chain. However, this is a decision to be taken by the participants who attend the workshop (guided by facilitators).

AFROSAI-E has been assisting member SAIs for the past ten years, and some SAIs have also organised such workshops to update the risk assessment matrix and/or risk register. As the capacity in the SAIs is strengthened, updating the risk matrix annually is recommended. Some of the risks identified in the previous year might not be relevant anymore, or the risk ranking might have changed during that period. For example, if the legislation was outdated, but some of the laws or acts had been updated and might be addressing some of the issues identified as risks in the previous year, those risks should be updated. SAIs can also collaborate with sister SAIs and invite resource persons who have experience in the EI sector and learn from each other through extensive knowledge sharing.

2.4. Response to audit risks identified

In order to determine the overall risk, it is also necessary for the auditors to describe what controls the entity has in place that might mitigate the risk. Suppose the auditor does not know the controls at the initial stage. In that case, the template should be updated once the auditor has gathered the necessary information about the controls, and then he/she must update the overall risk assessment. The auditors must never describe what controls should be in place as that would distort the risk assessment rating, and the SAI might end up prioritising audits where the risk is low.

Rating of the overall risk is done by combining likelihood and impact ratings. Auditors should describe as well as rank the overall risk. Sometimes, when the rating is done using the matrix only (Figure 5), that might not be possible from the auditor’s understanding of the sector and risk. Therefore, the auditors must also apply their professional judgement based on their knowledge of the entity and sector.

Based on the overall assessment of the risks, the SAIs must then decide on the audits to be conducted to respond to the risks. Addressing insignificant or low risks in this risk assessment approach is

unnecessary. There is a need to assess the risks carefully in the moderate category and then decide whether there is a need to conduct an audit. This model can assist SAIs with avoiding low-impact audits and prioritising audits that are significant to the intended users (parliament, citizens, donors, etc.) or audits where the risk along the EI value chain is high.

Once the auditor has identified all the relevant risks along the AFROSAI-E's EI value chain, in line with the auditing principles of ISSAI 100, he/she has a due-care professional obligation to design audit procedures to respond to the identified risks. Depending on the nature and understanding of the risk, the auditor may choose to respond to the risk by performing a financial, performance or compliance audit in line with ISSAIs and as per AFROSAI-E's methodology in FAM, CAM, and PAM.

The concept of the seven steps of AFROSAI-E's EI value chain and how to use the risk assessment tools along the value chain have been highlighted. The next chapter contains a more detailed explanation of each of the seven steps. In each step, the author elaborates on the roles of key stakeholders and audit considerations that SAIs might consider in the audit of EI. AFROSAI-E has developed Templates 1 and 2, which auditors can use to identify and map risks along the EI value chain.

3. Audit considerations along the extractive industries value chain

3.1. Policies and Legal framework

3.1.1. Introduction

A **policy** defines a sector's core principles, procedures and goals, underpinning all other rules and activities. In this context, policies are metarules (rules that govern other rules). As such, policies concerning all legal instruments that regulate EI are or should be elaborated. Clear policies are vital for a country's performance in an extractive industry. All legal instruments should be prepared under policies on EI. [22]

For example, the Norwegian fiscal policy framework is regarded as the basic success factor for the build-up of one of the largest sovereign wealth funds in the world.[23]

All revenues (net cash flow) derived from petroleum operations have to be transferred directly to the Government Pension Fund Global, and the resources in the fund can only be transferred to the budget when directed to do so according to a decision by parliament (maximum three per cent).

Box 1 - Case example: The Ugandan National Oil and Gas Policy

The examples from Uganda show how to formulate overreaching policies for developing and managing the EI sector in a country.

The Uganda National Oil and Gas Policy[24] defines ten objectives, which shall underpin and provide direction to all future management of the petroleum sector in the country. They are:

i. To strengthen the legal and regulatory framework for developing the mineral sector.

ii. To ensure efficient, equitable, accountable and transparent management of mineral revenues.

iii. To establish, manage and promote the country's mineral potential.

iv. To enhance and strengthen the institutional capacity for effective governance of the mineral sector.

v. To organise and legislate artisanal and small-scale mining in Uganda.

vi. To promote and protect Health, Safety and the Environment in the mineral industry.

vii. To provide a framework for gender mainstreaming, equity and human rights, and eradicating child labour in the mining industry.

viii. To provide a framework for marketing and value addition of minerals.

[22] https://pau.go.ug/uploads/Status_Policy_Implementation.pdf
[23] The fund | Norges Bank Investment Management (nbim.no)
[24] Uganda National Oil and Gas Policy (2018)

ix. To promote local content and national participation in the mineral industry and

x. To promote regional and international cooperation.

3.1.2. Legal framework

The legal framework governs the extractive industry's entire legal and regulatory structure. It includes the constitution, legislation, regulations and contracts, and international treaties regulating the sector. The legal framework plays a crucial role in ensuring good governance and sustainable development, as it serves as the backbone of the relationship between the government, the extractive industry companies and other stakeholders in EI. Hence, it is a cross-cutting issue along the EI value chain.

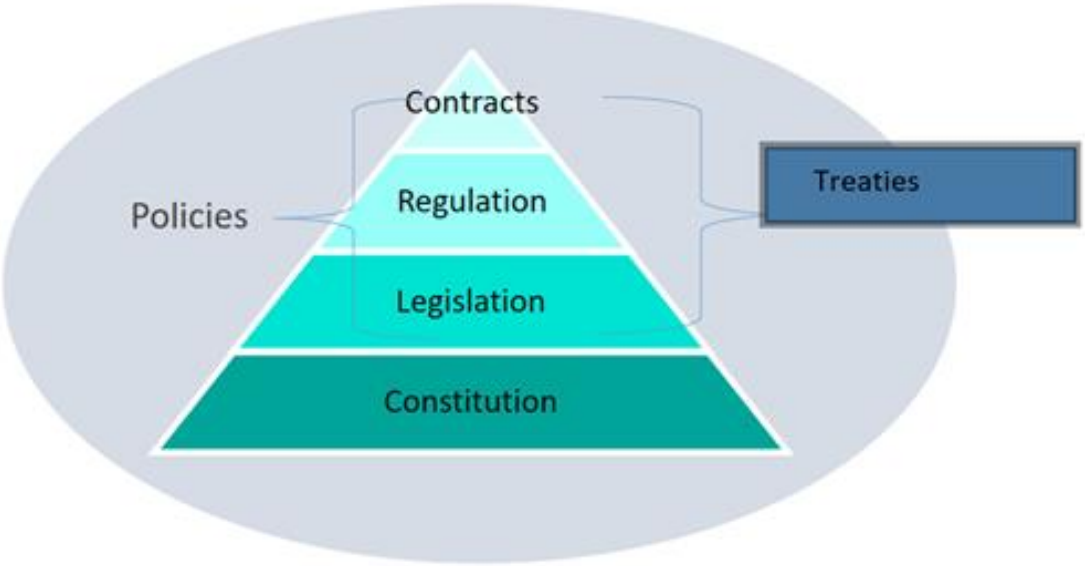

Figure 6: Policies and legal framework hierarchy

The legal framework relating to EI operates on several levels, and the relationship between the different levels can be illustrated in a **legal hierarchy**. At the bottom of the hierarchy is the foundation, which is the constitution. Furthermore, each instrument becomes more detailed and specific as the auditors go up the hierarchy. For example, contracts are usually more detailed than rules and regulations. Each legal instrument must be consistent and fall under the instrument below it, as the levels at the bottom of the hierarchy have higher authority.[25] A legal instrument with lower authority can only deviate from a higher authority legal instrument if the latter legal instrument clearly authorises such deviation.

[25] Legal Framework. NRGI Reader March 2015

It is shown in Figure 6 that 'Policies' and 'Treaties' are not stacked vertically onto the hierarchy, although they are depicted as being part of the legal framework. Under the principle of 'Transnational legal Pluralism and contestability',[26] the legal arena extends beyond the borders of nation-states in other ways. An era of 'global governance' is under way. It is characterised by the proliferation and fragmentation of global, regional, and transnational instruments, including binding laws (so-called hard laws, treaties and conventions) and soft laws (policies, voluntary guidelines, standards, principles, and codes of conduct). These are seen as influentially cross-cutting the vertical plain of the legal framework hierarchy and, as such, are a credible part of the legal framework. The different legal instruments are described below.

1. The **constitution** defines the principles upon which the state is based, the procedure in which laws are made and by whom. It is thus the most basic law from which all the other laws and rules are hierarchically derived. Most constitutions seek to regulate the relationship between institutions of the state. Some constitutions limit state power by establishing lines that a state's rulers cannot cross, such as fundamental rights.
2. A **policy** defines a certain sector's core principles, procedures and goals, underpinning all other rules and activities except the constitution. Thus, policies determine the preparation and interpretation of content in all legal instruments (laws, acts, regulations).
3. **Legislation:** Legislation comprises laws (acts) proposed by the government or members of parliament (MP) and adopted by parliament.
4. **Regulations,** instructions, directives, and statutory instruments/requirements set out provisions to supplement the legislation. The procedures to change regulations are less comprehensive than legislation; hence, they are more suitable for periodic adjustments (such as technical requirements, administrative procedures, and fees). They often elaborate on specific provisions of an act, offering more detailed and often more practical requirements. Regulations should incorporate internationally recognised good practices, including technical, environmental, accounting and auditing aspects.
5. **Contracts/licences** are agreements between two or more parties that provide the details of a specific project, binding only to the actors related to that project alone.
6. In addition to the national rules mentioned above, **international treaties** (conventions) have provisions that give rights and obligations to states, individuals and companies. International treaties are agreements entered into by sovereign states. Treaties can be bilateral (between two states) or multilateral (between three or more states). Laws, regulations and contracts should be

[26] Singer, Michael. 2006. "Legitimacy Criteria for Legal Systems." King's Law Journal 17 (2): 229–53

under binding treaties a state has entered into. In the legal hierarchy, international treaties often have the same level of authority as legislation. In the conflict between treaties and national legislation, the treaties will often overrule the national legislation (if allowed by the latter). **International standards** can be considered a part of the legal framework if adopted in the legislation, such as the OECD transfer pricing guidelines and the Santiago Principles on Sovereign Wealth Funds.

Table 2: Some examples and further description of legal instruments in the EI sector

LEGAL INSTRUMENT	THE EI NATURE OF THE LEGAL INSTRUMENT
Policy	Principles for governing natural resources. Policies in this context are paramount metarules (rules that govern other rules). All legal instruments should ideally be under policies on EI.
Constitution	The Constitution may provide the legal basis for: • The ownership, exploration, development and production of hydrocarbon and mineral resources. • The structure of political institutions, checks and balances within the political system, environmental protection, civil legal process and labour standards relevant to natural resources. • Power and responsibilities between the central government and regional and/or local government. • How resource revenue should be distributed between different levels of government.
Legislation and policy	Legislation usually defines the legal and institutional framework; the state's role, clearly separating commercial activities, licensing procedures and contractual terms; access to resources; comprehensive environmental protection requirements; and a framework for fiscal terms.[27] **Petroleum Act** The Petroleum Act provides high-level information on the roles and responsibilities of government and on how the petroleum sector should be managed. The act identifies the main institutions and their roles and responsibilities. The act should contain requirements for performing the licensing process, procedures for the exploration and production of petroleum, licensee duties, fees, royalties, etc. The Ministry of Petroleum

[27] Extractive Industries Value Chain: A comprehensive integrated approach to developing extractive industries. World Bank 2009.

LEGAL INSTRUMENT	THE EI NATURE OF THE LEGAL INSTRUMENT
	(or similar) is normally responsible for implementing the act and managing the petroleum sector. **Mining and minerals act** The mining and minerals act expresses the basic position that the state owns minerals in their natural state. It outlines the licensing scheme for mineral operations, the incidence of the various mineral rights and the mandate of the major regulatory institutions. Some pieces of subordinate legislation add detail in specific areas to the regime set out in the principal legislation. It is similar to the Petroleum Act. **Petroleum Revenue Management Act** The petroleum revenue management act provides rules and procedures for the handling of petroleum revenue by the government. The provisions should cover the transfer of petroleum revenue to the consolidated fund (for funding next year's national budget), the establishment and management of reserve funds, transfers to affected local communities, investment policies, etc. The central bank is normally granted a key role in petroleum revenue management. **Taxation Act** The taxation act specifically for the petroleum and EI sector is often established with special tax rates and regulations. The penalties for breach of laws concerning EI (corruption, embezzlement, fraud, tax evasion) may be implemented in various laws regarding EI. **Other relevant legislation and policy** HSE act, procurement act (regulating the bidding process), finance and accountability act, central bank act, audit act, hydrocarbon and/or mining law, petroleum sector policy, and mining sector policy.
Regulations	Regulations in EI are usually the implementing rules created by the executive body to make legislation practical. For instance, a law may require the executive body to award petroleum licences through competitive tender. The regulation related to this legislation may then describe how, when, and

LEGAL INSTRUMENT	THE EI NATURE OF THE LEGAL INSTRUMENT
	where interested companies must register their interest and which specific forms to submit.[28]
Contracts	In EI, the most relevant contracts are those in which the state grants the right to explore or extract national resources. The most common forms of contracts are concessions, production sharing contracts (PSC) and service agreements. These are further discussed in Section 3.4.
International treaties (conventions) and standards	**International treaties** The tax treaty's main purpose is to avoid double taxation. Mainly bilateral and based upon different model tax conventions (i.e., UN Model Tax Convention, OECD Model Tax Convention, US Model Tax Treaty). Links to databases on international tax treaties: • In-Force Treaties (taxnotes.com) • The Tax Treaties Explorer – ICTD United Nations Framework Convention on Climate Change, Paris Agreement on climate change. Links to databases on international treaties on environmental protection (IEA`s): • Environmental Agreements by Lineage | International Environmental Agreements (IEA) Database Project (uoregon.edu) • Treaties - International Environmental Law Research Guide - Guides at Georgetown Law Library Other: • OAU/AU Treaties, Conventions, Protocols & Charters | African Union **International standards** EITI Standard, OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, Santiago Principles on Sovereign Wealth Funds, Equator principles, The Kimberly Process Certification Scheme.

[28] Legal Framework. NRGI Reader March 2015

LEGAL INSTRUMENT	THE EI NATURE OF THE LEGAL INSTRUMENT
Other relevant legal instruments	Government's strategic plan, annual state budget, sales, transportation and marketing strategy.

Requirements on different levels should all be based on the state/government's key policy decisions. When looking at a single item such as petroleum extraction, the legislative framework applicable to the process will probably be on all four levels described above in the legal framework hierarchy. The legislative provisions on different framework levels should work together and not prescribe contradictory processes.

Box 2 - Case example: Legal Instruments in the Ghanaian Petroleum and Mining Sector

Constitution:

The Constitution of the Republic of Ghana, Articles 257, 268, 269

Policy:

The National Energy Policy (2010)

Legislation regarding petroleum:

- *Ghana National Petroleum Corporation Law, 1983 (PNDC Law 64)*
- *Petroleum (Exploration and Production) Act, 2016 (Act 919)*
- *Petroleum Exploration and Production Law 1984 (PNDC Law 8410)*
- *Petroleum Income Tax Law 1987 (PNDC law 188)*
- *The Petroleum Revenue Management Act, 2011 (Act 815)*
- *The Petroleum Revenue Management (Amendments) Act, 2015 (Act 893)*
- *The Petroleum Commission Act, 2011 (Act 821)*
- *The Income Tax Act, 2015 Act 896*

Legislation regarding minerals:

- *Minerals and Mining Policy of Ghana 2014*
- *Minerals Commission Act, 1993 (Act 450)*
- *Minerals and Mining Act, 2006 (Act 703)*
- *Minerals and Mining (Amendment) Act, 2015 (Act 900)*
- *Minerals and Mining (Amendment) Act, 2019 (Act 995)*
- *Minerals Development Fund Act, 2016 (Act 912)*
- *Minerals Income Investment Fund Act, 2018 (Act 978)*
- *Kimberley Process Certificate Act, 2003 (Act 652)*

Regulations regarding petroleum:

- *Petroleum (Exploration and Production: General) regulations, 2018 (LI 2359)*

- *Petroleum (Local Content and Local Participation) regulations, 2013 (LI 2204)*
- *Petroleum (Exploration and Production: Measurement) regulations, 2016 (LI 2246)*
- *Petroleum (Exploration and Production: Health, safety and environment) regulations, 2017 (LI 2258)*
- *Petroleum (Exploration and Production: Data management) regulations, 2017 (LI 2257)*
- *Petroleum Commission Fees and Charges Regulations (LI 2221)*

Regulations regarding minerals:

- *Minerals and Mining (Health, Safety and Technical) Regulations, 2012 (LI 2182)*
- *Minerals and Mining (General) Regulations, 2012 (LI 2173)*
- *Minerals and Mining (Licensing) Regulations 2012 (LI 2176)*
- *Minerals and Mining (Explosives) Regulations 2012 (LI 2177)*
- *Minerals and Mining (Support Services) Regulations, 2012 (LI 2174)*
- *Minerals and Mining (Mineral Operations – Tracking of Earth Moving and Mining Equipment) Regulations, 2020 (LI 2404)*
- *Minerals and Mining (Ground Rent) Regulations, 2018 (LI 2357)*
- *Minerals (Royalties) Regulations, 2009 (LI 2173)*
- *Minerals and Mining (Compensation and Resettlement) Regulations, 2012 (LI 2175)*
- *Minerals and Mining (Local Content and Local Participation) Regulations, 2020 (LI 2431)*

Related laws:

- *Environmental Assessment Regulations, 1999 (LI 1652)*
- *Environmental Protection Agency Act, 1994 (Act 490)*
- *Forestry Commission Act, 1999 (Act 571)*
- *Water Resources Commission Act, 1996 (Act 562)*
- *Geological Survey Authority Act, 2016 (Act 928)*
- *Lands Act, 2020 (Act 1036)*
- *The Income Tax Act, 2015 (Act 896)*
- *Local Governance Act, 2016 (Act 936)*
- *Land Use and Spatial Planning Act, 2016 (Act 925)*

Contracts:

- *The Model Petroleum Agreement of Ghana*
- *The Petroleum Agreements*

Source: Ghana Audit Service, 2015; GHEITI Oil and Gas Report (2018); Petroleum Commission Ghana, 2018; The Law Reviews Ghana

3.1.3. Key role players

Supreme audit institutions. For SAIs, auditors need to have an overview and understanding of the legal framework and the roles and responsibilities of the key players in the EI. In this way, in line with the SAI's mandate, the SAI can identify whether there are any gaps between the various legal instruments and determine possible risk areas in the legal framework.

Parliament will pass laws, approve policies regulating the EI sector, and scrutinise and act on the audit reports relating to EI processes and revenues. In cases of high or significance, parliament may also allow the exploration and development of petroleum and minerals within an area, balancing different considerations such as environmental and revenue prospects.

The government will operationalise the legal framework through its ministries into regulations that govern the EI sector. It will also propose policies to be passed by parliament. The government is responsible for putting structures in place to ensure the proper implementation and compliance with the legal framework. Under these policies, laws/acts and regulations, the government is responsible for negotiating, signing contracts/agreements, monitoring EI operations with multinational EI companies, and performing due assessment, collection and allocation of the revenues from the EI sector.

Different governmental institutions, i.e., agencies dealing with health, environmental and safety issues, carry out the government responsibilities along the EI value chain. A national petroleum/energy/mining company in which the government has all or a majority share(s) can have governmental functions and act as an operator and/or a licensee. Within the government, the enforcement of the legal framework is further complicated by the number of public agencies involved in the implementation of the legal framework. Mapping the various ministries and public agencies involved should go hand in hand with mapping the legal framework.

Some of the relevant public agencies involved are as follows:

- Ministry of Mines, petroleum or energy
- Ministry or agency responsible for taxes and/or other financial payments
- Ministry responsible for the protection of the environment
- Ministry responsible for health, labour, or safety
- The investment promotion agency
- State-owned enterprises

International companies are often crucial for ensuring that advanced technology and experience are brought into the projects. They manage much of the reconnaissance of exploration, production, operation and dismantling of installations. One of their main objectives is to maximise profits by extracting as much of the resource rent as possible in the countries where they operate.

Civil society has an important role in promoting the rule of law and the existence of a robust legal framework. They tend to monitor EI closely and often function as a watchdog. These may include academia, the media, EITI, Tax Justice International, Publish What You Pay, NRGI and Ad-hoc groupings may be established to protect the interests of affected parties.

3.1.4. Assessing the legal framework across the EI value chain

There should be specific legislation regulating the activities of each element of the EI value chain. The auditor must understand all existing legislation to identify gaps, inconsistencies, and areas where different interpretations can be applied. As explained above, auditors should not expect to find all these elements covered in a single piece of legislation. Moreover, while some SAIs are mandated to evaluate certain legislations, others do not.

Government activities/decisions to explore/extract

The legislation should clearly define the duties and responsibilities of key players. The legislation, typically the Petroleum Act/Mining Act, should define who has the right to conduct seismic surveys/exploration and who has the right to own the data gathered from these exploration activities. Legislation must specify what data should be handed over to the government for inclusion in national databanks.

Award of contracts and licences

The more comprehensive the legislation, the fewer decisions must be made through negotiations with the petroleum and mining companies. The procurement process and the aspects left to be negotiated are ultimately policy decisions under the legislation, i.e., the procurement act. The auditor should identify the relevant steps of the procurement process in the act and relevant provisions from other acts or regulations, ensuring additional transparency. Discretionary authority given to individuals and even multiple public servants in quorum should be identified, for instance, tax incentives, tax exemptions or tax holidays. Experience shows that a high occurrence of such tax incentives[29] reduces the tax base,

[29] https://www.taxjustice.net/2019/01/03/ineffective-tax-incentives-on-profits-heavily-used-by-african-nations-compared-to-european-nations-study-finds/

creates room for bribery and corruption and increases the appearance of loopholes for tax evasion. See more details on this in Chapter 4.3

Monitoring of operations

The legislative framework should provide for the regulatory bodies tasked to monitor operations. The mandates of these entities should also provide useful information on their tasks. Regulations normally deal with controls and quality metering, quantity sales and exports of produced volumes and aspects of human resources, safety and the environment.

Assessment and collection of revenue

Payments derived from EI are often the most prominent revenues. The tax legislation should be updated to cater for the super profits made from the extraction of these resources, and special tax rates should apply. Revenues from Petroleum Sharing Agreements/Contracts (PSA/PSC) are often the most extensive revenues from the petroleum sector. The auditor could assess to what extent the tax legislation/PSA/PSC is clear on how and which exploration costs can be deducted from the gross revenue. There should also be specific provisions in legislation and PSA/PSC that constitute the arm's length principle and deal with the transfer pricing risk.

A general anti-avoidance rule (GAAR) should also be considered. Some former UK colonies have incorporated or inherited strong GAARs in their legislation. There should be specific reporting requirements for EI production quantity and quality, exports, etc., in various legislation, thus enabling revenue officers to compare audited financial statements and tax returns with relevant and credible production and sales figures.

Revenue management and allocation

The legislation should clearly define how revenue from EI should be managed and allocated to ensure that revenues from extractive industries are used to diversify the economy and that there is a form of distribution formula in place. There should be clear procedures to invest the collected revenue and to ensure maximum dividends.

Implementation of sustainable policies

As extraction and production of natural resources impact a country's environmental, social and economic aspects, the EI legal framework should include regulations governing these aspects at each step throughout the EI value chain. Some legal instruments relevant to sustainability are environmental

laws, local content laws and labour laws, and environmental, social, health and safety regulations. The steps on *policies, legal framework, and implementation of sustainable policies are* cross-cutting issues along the EI value chain.

3.1.5. High-level audit considerations

The SAI needs to do a thorough mapping of the legal framework to establish the following:

- What are the legal requirements of the government's extractive sector management? A mapping of the legal framework is a prerequisite for developing an audit programme.
- How is the role of the SAI spelt out in the legislation? The SAI may be given a direct role in, e.g., verifying the recoverable costs and receiving declarations of assets from officials.
- Is the legal framework effective and appropriate for ensuring that management of the EI sector is in line with the decisions and intentions of parliament? Are the government's policies and policy instruments effective and appropriate for following up on the EI-related decisions and intentions of parliament?
- The legal framework constitutes the bulk of policy that parliament approves. Implementing those policies presents many possibilities for performance/value for money audits. The SAI can review the framework and attempt to identify performance audit themes based on the parliament's intentions when improving the legal framework.
- Auditors may also consider contracts influencing government reporting, e.g., an agreement with EITI as a member country.
- The auditors may also consider Chapter 5 of EI sourcebook on Policies, Legal and Contractual Framework[30] as the information might be useful for gaining more knowledge about the topic and could be helpful in auditing.

3.2. Government activities/decision to explore/extract

3.2.1. Introduction

Exploration in the mining and oil and gas sectors provides the first step to understand better the resource base's quality and quantum. Explorations provide policy makers and regulators with the information needed to make informed decisions about developing minerals and oil and gas resources based on the best available data. Exploration surveys determine areas that are or are not likely to have recoverable oil, gas, and mineral resources. However, unless the surveys can commence, that information will never be available to policymakers and the public.

[30] http://www.eisourcebook.org/642_5+Policy%2C+Legal+and+Contractual+Framework.html

Different ministries' and agencies' roles and responsibilities must be clearly defined and enforced. This helps avoid overlapping competencies and policy-making, rulemaking, and monitoring roles. At the same time, it prevents gaps in regulatory responsibility. Moreover, if the overall policy objective is to utilise the extractives sector for wider economic development and benefits; in that case, it is important to ensure that institutions and agencies work to this end and do not discourage such development by their actions.

Ideally, parliament or an appropriate legislative body must consider whether an area should be explored. There will always be several considerations which may relate to the environment, such as affecting the communities and local industries. Such resources are often discovered in areas rich in biodiversity and constitute a fragile environment. However, a decision to open an area for exploration is a political decision which should be based on unbiased and neutral information to balance various interests. An Environmental Impact Assessment (EIA) should be done whenever a seismic survey is performed.

Box 3 - Case example: Typical Aspects of Decision-Making by a Government

- Topographical mapping, regional geological mapping, and related work.
- Geological data collection, dissemination, and publication (including digitising paper files and records).
- Setting consultation, consent, and approval requirements at critical stages of operations, including the following:
- Reconnaissance.
- Exploration work programme implementation.
- Drilling.
- Discovery.
- Appraisal.
- Commerciality.
- Development planning and any revisions to plans.
- Reservoir management and production.
- Late field or mine life plans.
- Decommissioning plans.

3.2.2. Exploration activities for mining

Mining is extracting useful materials from the earth through exploration and appraisal. Some examples of substances mined include copper, coal, gold, and iron ore. Mining can be done in different forms, such as large-scale, small-scale or artisanal. Large-scale mining involves the payment of royalties and other taxes to governments in return for developing publicly owned mineral resources. Leading Large-Scale Mining operators also implement international standards in areas like disclosure of payments to the government, cyanide management and conflict-sensitive business practices. Artisanal and small-

scale mining is a largely informal economic sector that includes workers worldwide who use basic tools to extract from the earth everything from gold and gemstones to vital metals such as cobalt, tin, tungsten, and tantalum.

Exploration usually begins with airborne studies and mapping. Even when minerals are below the ground, geologists can gather initial information based on formations and recordings of magnetic fields. Next, geologists conduct seismic analysis using sound waves to get information about rocks' chemical composition and density. If this initial information is promising, companies may apply for exploration licences to conduct further research, usually including drilling and extracting core samples. The samples are analysed to estimate the composition and size of a field. Mineral finds are often classified using inferred, indicated, and measured mineral resources.

3.2.3. Seismic and geological surveys

Seismic surveys are the oil industry's most important tool in mapping potential deposits of oil and gas several thousand metres below the earth's surface. Different seismic data are needed for the various activity phases, from the early exploration phase to the development and production of potential reserves in a field. It may, therefore, be necessary to collect seismic data several times in the same area. Seismic surveys are used to determine the oil and gas location beneath the earth and the size of reservoirs. Seismic surveys are performed by deploying a range of energy sources and various sensors or receivers on the desired area of interest. Seismic surveys involve generating sound or energy waves that are transmitted into the earth and measuring those sound or energy waves that are reflected from subsurface layers.

There are several categories of seismic surveys; below are described offshore surveys:[31]

- In 2D surveys, the data are collected by a single sensor cable. This provides a relatively low-resolution image of the underground and is used for reconnaissance in new exploration areas.
- In 3D surveys, seismic data are collected by several parallel sensor cables, providing a three-dimensional and more detailed image of the subsurface. This is used in the exploration/appraisal phase.
- 4D surveys consist of repeated 3D surveys of the same area to detect any changes in a reservoir over time as a result of production or injection. These surveys are conducted in producing fields.

[31] Seismic surveys - Norwegianpetroleum.no (norskpetroleum.no)

The effect of seismic surveys on fish

Many studies have been conducted on the effect of seismic signals on fish in all stages of life. There are studies of possible direct damage to fish in their very early stages (eggs and fry), but since adult fish can move away from the sound source, the studies for this group are more concerned about behavioural effects. Many studies have shown that organisms can be damaged when exposed to sound pulses with a rapid rise time (i.e., rapidly increasing sound pressure) and a peak value of 230 dB or more.[32]

Geological surveys

A geological survey is a systematic investigation of the Earth's geology. It is performed to create geological models and maps. Geological maps are based on geological information and illustrate the geological features on a topographic map. The information on these maps is used to interpret the earth's crust. They are particularly valuable for locating mineral deposits, potential hazards, and energy resources.

Geological surveys use several techniques to get the information needed for projects. These include conventional visual surveys, studying landforms, drilling holes by hand or using a machine, and using remote sensing techniques such as satellite images and aerial photography. Geological surveys are also used on coastal geology, such as placing dredged materials, including bedrock quarries, sand and gravel resources.[33]

The Office of the Auditor General of Zambia's Compliance Audit Report on the Awarding and Monitoring of Mining Rights for 2017 Accounts revealed that during 2017, only twelve per cent of the awarded exploration mining rights holders submitted quarterly reports to the Geological Survey Department (GSD). The rest of the exploration mining rights holders were non-compliant with the provisions of the Act.[34]

Africa geology has gathered information and links for several countries that might be useful for auditors to obtain more information.[35] In many countries, the Ministry of Mines has information that would be helpful to understand the subsector in the country. For example, Namibia's Ministry of Mines and Energy (MMA) has published information on geological surveys in Namibia on its website.[36]

[32] Fact sheet from (offshorenorge.no)
[33] Geological Survey - Africa Surveyors (africasurveyorsonline.com)
[34] inside 1.cdr (ago.gov.zm)
[35] African Geological Surveys & Government Departments (geoafrica.co.za)
[36] Ministry of Mines and Energy - Geological Survey Staff (gov.na)

3.2.4. Data management

Through ministries and agencies/directorates, the government should ensure that information from these surveys is stored and updated in a database. Controls should be in place to ensure that reliable and up-to-date information is available in the database. Geological information infrastructure, including regional assessment of petroleum and mineral resources, is also important, as it enables the government to understand better and manage the country's petroleum and mineral resources, define public policies, manage land-related conflicts, assess potential future revenues and facilitate bidding processes, particularly in the case of hydrocarbons. Weak information security poses the risk of disclosing information to unauthorised persons without proper access; where security is low, information may be amended unlawfully. On the other hand, certain information on exploration blocks should also be made public if an open bidding process is initiated. Such information includes disclosure that:

- Giving out reconnaissance licences was fair, and the reconnaissance phase has a time limit (usually, such licences last one year).
- The licences specify that the data and information gathered from the seismic surveys will become the government's property and be made public long-term.
- Any seismic- and geological data sale should be agreed upon with the government. The government should also receive a share of the profit from the sale of data.

Government should always have the upper hand when it comes to information. It is of major strategic importance that the government has full knowledge of any mining, petroleum and gas deposits in the seabed. This knowledge will assist in establishing future award rounds, setting the taxation rate and predicting future revenue from mining, petroleum and gas production. The mining and exploration industries are under increasing pressure and obligation to adhere to stricter environmental reporting guidelines. A data management system should manage all the data and documentation for current and future environmental impact studies that would benefit from integrating the environmental management system in several ways, including rationalising data collection and simplifying the acquisition of licences and permits.

3.2.5. Extraction of oil, gas, and minerals

When the exploration activity results show that oil, gas or mineral deposits are significant and the prospects of generating economic rent or resource rent are great, the government must decide whether to extract. The extraction consists of any operations that see the removal of minerals and aggregates

from the earth, processing and beneficiation of these extracts and ultimately, the sale of the final products and by-products. In addition, extracting natural resources is a hazardous activity for the environment. The potential environmental consequences can be disastrous. The government must play a regulatory and monitoring role to help mitigate those risks.

Due to the scarcity and high demand for the resources extracted, a great deal of economic rent is produced through EI. Economic rent or resource rent in the context of natural resources is the excess profit or supernormal profit that originates not from the production process but from the inherent value of the exploited resource. This excess profit is not tied to the production process of the producer, which can extract a normal rate of return from a fraction of the market price. Therefore, the value of these resources is inherent, and because they occur on land or the continental shelves of countries, they belong to the citizens of those countries.

The final extraction decision is taken at various levels of government and sometimes even by parliament. Generally, the Ministry of Mines or the Ministry of Oil/gas will award exploration licences; see more details on the award of licences and contracts in Chapter 3.3.

3.2.6. High-level audit considerations

The role of the auditor, primarily, is to understand how the government gathers information about the exploration area and how this information and data are kept and used. Further, the award of reconnaissance and exploration licences follows the same principles as a public procurement process. The reconnaissance permit is used in tandem with an exploration licence. There should be a clear demarcation between these two or at least uniformity in the usage and the activities involved in each. Although the awarding process will differ from country to country, there are a few steps that are generic and which can be audited as compliance or performance audits. The SAI should assess the following:

- Whether an EIA was conducted prior to the political approval or if one is planned. Who did the EIA?
- Were quality assurance processes undertaken?
- Is the process of awarding exploration licences conducted transparently?
- Is the company undertaking surveys using a competitive process in the procurement process?
- Has the initially awarded company used the exploration licences, or did the company sell the licence to another company?
- If the company has sold the exploration licence with, e.g., fifty to ninety per cent yield, the government should also get its share or have some mechanisms to capture such revenues.
- Is there a reason to doubt the reliability of the explorative studies?

- What is the competence of those performing the study?
- Does the government run a seismic data database?
- If yes, is it complete, and is proper data security provided?
- Are the data up-to-date?
- Are there strategies to ensure reliable data on the availability and quantum of minerals in areas explored before they are given out as concessions?
- Do regulators monitor the environmental management conditions indicated in explorative licences and permits?
- What measures are implemented to ensure that companies carrying out exploration do not end up extracting and that they are made to acquire the relevant licences and permits for extraction?

3.3. Award of contracts and licences

3.3.1. Introduction

This section discusses the characteristics of a transparent, competitive, and non-discretional bidding process to award exploration, development and production rights. We shall focus on a best practice scenario, highlighting the characteristics of an efficient and effective system.

Contracts (licences, leases, concessions, and other contractual arrangements)

Contracts in EI are complex and most often have a major potential impact on various areas of a country. They govern the relationship between governments and oil, gas, and mining companies in extracting and exploiting natural resources. They affect everything from revenues and tax liabilities to local content obligations to protecting the environment.

Yet, despite their critical importance, many host country governments lack a strategic vision (policy), strong regulatory frameworks, or the necessary resources to plan, prepare for, negotiate, monitor, and implement such projects, limiting their ability to maximise the benefits for their country. Countries allocate mineral exploration and production rights differently, from licensing rounds and public tenders to direct procurement/negotiation. The majority use a combination of these. While some countries have rigid systems where a few parameters that affect the sharing of the resource rent are biddable, some award rights regarding work programmes, and for others, everything is biddable. Some examples of biddable parameters include cash bonuses, royalties, and profit shares. Proper and successful government award of contracts and procurement rests upon certain core principles of behaviour[37]:

[37] General Procurement Guidelines - 2.doc (treasury.gov.za)

- Value for Money
- Open and Effective Competition (predictability, transparency)
- Ethics and Fair Dealing (equal treatment and proportionality)
- Accountability and Reporting (verifiability, transparency)
- Equity

An efficient and effective system for the award of contracts has the following key characteristics:

- A legal framework which defines institutional responsibilities well
- Competency and capacity to audit and monitor compliance with the legal framework
- Best international practice for the award of rights
- Competitive and bidding procedures
- Minimal discretionary authority
- Efficient communication system

In areas where good geological data is available and where there are clear indications of interest from more than one potential applicant, governments are more likely to offer licences on a competitive bidding basis. Competitive bidding is a good practice for a transparent contract awarding process. The bidding and licensing process for minerals, oil and gas exploration and production rights is normally managed by a ministry responsible for interacting with the mineral, oil and gas companies. The tender process requires the investors to place bids under bidding criteria in legislation or regulation. These criteria may include the following:

- The highest bidder.
- The best-qualified bidder or
- The most experienced bidder.

3.3.2. Types of fiscal regime

The awarding of contracts and licences is based on the fiscal system of a country. There are two main types of fiscal systems: one based on contracts and one on concession/licensing. No one system is superior to the other; however, the provisions within the system determine how good the agreement is for the government and how good it is for international companies. The amount of resource rent the governments and companies share is usually determined by the agreements' parameters rather than the type of agreement used. The key terms and main issues involved in a fiscal system include the following:

- Who will pay for exploration and development?
- How will production costs be financed?
- Who will manage the operation?
- When will the production start?
- What kind of minerals?
- How will the produced resource be shared or sold?
- In what order will the parties be paid?

Concessionary system

A concession is an agreement where the government grants a company or a person (investor) the exclusive right to explore for, develop and/or produce resources at its own risk and expense, generally for a specific amount of time, in the petroleum and mining sectors. Extracted minerals according to these arrangements belong to the investors who, in exchange for such rights, generally pay a royalty on the volumes extracted, as well as other payments such as bonuses, surface rentals, VAT and regular taxes as PAYE and tax on profit/net revenue (company/corporate/income tax). Concessionary regimes usually operate within the existing tax laws. For instance, the standard corporate income tax rate for all industries also applies to the petroleum industry. Added to the existing income tax are various forms of resource rent taxes and/or royalties to compensate the government as the resource owner for the resources that will be depleted during production operations.

The concession agreement is the oldest of international agreements and is sometimes referred to as a licence agreement or tax and royalty agreement. Norway's licensing system in the petroleum sector is an example of this. A common difference between concessions and PSCs is that there is usually no limit on deductions in the tax systems, so the companies may often be entitled to allocate more cost to the licence. Losses will be carried forward until the company's losses/costs are fully deducted from taxable production revenues. Hence, it will usually take time from the start of production until the government gets its share in production through taxes. In the mining sector, a mining law may set out the terms for compensation and implementing regulations. Contracts may also provide special terms, including relief from royalties or special allowances. If the government is a partner in the joint venture, it also receives a share of the production corresponding to the share it owns. The advantage of a concessionary system is that it is more straightforward and transparent than other types of agreements, especially if a public bidding system is used to set basic terms (in contrast to discreet direct negotiation between investor and government representatives).

Additionally, the financial risk of the project, including the cost of exploration, is absorbed by the contractor. The main disadvantage (for governments) is that a bidder's perspective is commercial. As a result, the presence of information asymmetry, where decisions are made with insufficient information about the potential reserves in the area explored, can result in the government collecting less revenue. This can result in the government accepting lower returns on the project, especially if there is a lack of adequate knowledge about the potential of a concession area because ground-breaking or profound exploration has not been fully undertaken.

Contract based systems

Production sharing agreements

A PSC/PSA is a contract/ agreement between a government and an investor. PSCs usually allow more government control over the resources' exploration, development and production than a concessionary mining and petroleum system. The contract terms are usually separated into distinct and sequential exploration, development, and production periods. As with concession arrangements, the ownership of the investors' share of production generally vests with the investors upon production. While the private investor takes on the full risk of the investment, the government retains full ownership of the resource. Once production starts, the oil (or its proceeds) is shared between the state and the investor according to contractual clauses. "Cost oil" is the first fixed part/component of produced petroleum in which the investor can recover costs. The second component is "profit oil" – remuneration for risk and capital. Profit oil (or its proceeds) is shared between the government and the investor.

Although sharing of production is the primary fiscal mechanism for value sharing in these types of contracts, other common forms of fiscal instruments used in PSCs include royalties, bonuses, and profit taxes. In some countries, the financial clauses of the PSC supplant all other taxes, while other taxes still apply within the PSC framework. Enforcing social and environmental standards beyond the contract terms is difficult with a PSC. Investors are weary of spending large sums of money on long-term, high-risk projects without guarantees about the future tax regime. PSCs are designed to provide this guarantee. To the state, a PSC usually ensures a high volume of private investments without financial and operational risk. The government does not risk losses other than the cost of the negotiations (mainly fees paid to advisers). Another advantage for developing countries is that the fixed part of «profit oil» secures revenues from the start of production. Concession agreements should be reviewed more in substance than in form. Some agreements/service contracts are referred to as concession agreements

while, in substance, are a hybrid of PSC and service contracts, making them difficult to categorise.[38] More details on production sharing agreements and the fiscal instruments are provided in the section below on revenue collection.

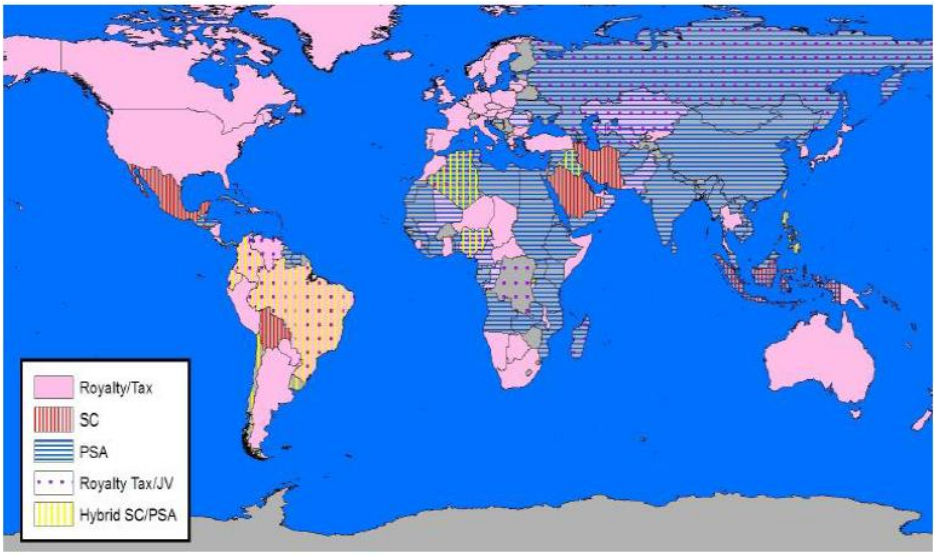

Figure 7: Illustration of petroleum taxation systems[39]

Technical Service Agreements

Technical Service Contracts (TSC, sometimes called Technical Assistance Contracts or Technical Service Agreements) are generally contracted regarding existing fields. Service contracts tend to be typical for countries where the country only seeks to attract additional expertise. The government retains control of the resources and enters into an agreement for a company to provide technical services in the form of exploration work, construction and managing development. The government keeps the produced resources, and the company is paid in cash or commodity. The contractor tends to hold less risk in these situations and provides its services for a fee. In some cases, the contractor may be exposed to cost overruns compared to approved budgets; thus, sometimes, these arrangements are referred to as "risk service contracts."

Joint Venture or Consortium

This arrangement is between several investors who may pool capital and expertise to jointly exploit and share the risks of exploiting a particular extractive project. The state can also be a partner in such joint ventures. The benefit of a joint venture (JV) for a government is that it is not alone in the decision-making and responsibility for a project. It can count on the expertise of a major oil company. All parties

[38] PSAs Vs Service Contracts, The Case of Iraq | MEES
[39] Source: Econ

share the profits and liabilities for taxes and royalties. Sharing also has a downside for the government. Risks and costs must be shared, too, making the host government a direct and responsible participant in natural resource extraction. Responsibility also brings with it potential liability, including for environmental damage.

***Table 3: Advantages and disadvantages of concessionary and contract-based systems*.**[40]

Fiscal Regime	**Advantages**	**Disadvantages**
Concessionary system	• Concessionary regimes are more straightforward and transparent. • Technological innovation is high, which results in the potential for efficiency gains in all project development and implementation phases. • Low risk for the government as the investor takes on all the project's financial risk, including the cost of exploration. If wells dry, the private company largely shoulders the financial burden.	• Due to information asymmetry, the government may not know the full potential of the area explored through extensive exploration. • It may require close regulatory oversight. • It may have underlying fiscal costs to the government.

[40] **Source:** *Tax Policy Discussion Paper for Public Comment- What is the most appropriate tax regime for the oil and gas industry?* 2021121501 Discussion Document - Oil and Gas Tax Regime.pdf (treasury.gov.za)

Contract based system (PSC, TSC and JV)	• Low risk for the government in that the government does not risk losses other than the cost of the negotiations (mainly fees paid to advisers). • It provides certainty for the investor by locking in taxes for the project's duration upon contract signature. • PSCs are beneficial to the government in that they ensure a high volume of private investments without financial and operational risk.	• Agreements are complex in structure and require a high-level of negotiation. • Contractual provisions are binding throughout the contract period and may not make provisions for flexibility to adjust to unplanned situations.

Similarities and differences between petroleum and mining contracts

Similarities exist between the sectors' usage, but the considerable differences between the two industries are reflected in Table 4.

Table 4: Similarities and differences between petroleum and mining contracts

Condition	**Petroleum**	**Mining**
Contractual preferences and the existence of separate regimes	The agreements typically used in the petroleum industry (PSAs/PSCs) have limited relevance to those commonly found in the mining industry	Licences are typically favoured in mining, with permits and concessions sometimes used
Consideration of geology and exploration, production processes, market economics, and environmental and social impacts	These differences explain why production sharing agreements are more widely used in the petroleum industry than in mining	

Scope of contract agreements	The scope of most petroleum agreements is wider, extending over more phases of the industry's activity (exploration, production, and sale)	The scope of most mining agreements is not wider
Degree of government involvement and control	Government control is usually greater in petroleum agreements	Government Control is less in mining agreement

The importance of model contracts/agreements/licences

EI sector laws give powers to governments to negotiate agreements with potential investors. Hence, negotiators are often allowed to develop terms to attract investment. Differences in risks and benefits of the blocks or areas a government can offer are reflected in particular agreement clauses, considering specific risks and market conditions. However, the contingency for abuse of this discretionary power is that recent trends confer less discretion, encouraging greater standardisation model contracts, agreements, and licences. Box 4 has a case example showing abuse of discretionary authority in government contract agreement as cited from the performance audit report on social and economic contribution from the mining services in Malawi. This report was published in October 2019.

Box 4 - EI audit example: Performance Audit Report on the Social and Economic Contribution of the Mining Service in Malawi (Chapter 4.2.1. Findings)

4.2.1 Legislation and regulatory framework of the mining sector

According to the Mines and Minerals policy 2013, government had set plans through DOM to put in place a clear, transparent and equitable regulatory framework for the mineral sector, to effectively regulate the mining services. In addition, Ministry's strategic plan (2014-2016) provided for a strategic outcome of having improved mining policies, strategies and legislation and a target of revising mining legislative framework by June 2016.

An enquiry into the legal and regulatory framework for the mining services established that Malawi was using the Mines and Minerals Act of 1981 which is out of date and now overdue for revision. Review of the 1981 Mines and Minerals Act revealed that there were shortfalls in the existing legislation which affected the way how contracts were being award to large scale mining companies. This contributed to ministry's failure in its mandate by not fulfilling the critical strategic outcomes in its 2014-16 strategic plan. These shortfalls include among others:

i. Ownership of mineral rights under the Act with regards to award of contract to large scale mining companies

ii.

Section 2 of the Act stipulates that ownership of Mineral rights under the Act is predicated on the principle of social trust whereby the entire property in, and control over minerals in land in Malawi are vested in the President on behalf of the people of Malawi. This creates a room for abuse by political leaders in offering mining contracts. This is evidenced in the way in the how Paladin's contract award was handled. The process of contract award did not comply with the requirements of having the contract reviewed by the Commissioner of Mines. Non-compliance to the requirements of the award of contracts by the Ministry of Natural Resources, Energy and Mining led to the crafting of a fiscal regime that did not benefit the country in terms of revenue generation. For instance, the fiscal regime provided for 15% stake in form of Company's dividends to Government of Malawi (GOM). However, with reference to this provision, the audit established that during the period under review, the company had been reflecting net losses after tax in its financial statements. This meant that no dividends were paid to GOM throughout the whole period of the company'soperations.

Furthermore, the fiscal regime provided for tax holidays which led to loss of tax revenue by GoM as Paladin was given exemption from the resources rent tax for life of the mine and exemption from import duty and import VAT.

The responsibility which government negotiators bear is considerable. Lack of sufficient capacity on their side to negotiate a contract and monitor its operation is often a challenge. Using model contracts with terms and conditions that may be developed with assistance from international experts has the advantage of reducing the impact of capacity, inexperience, and competence shortage.

It is a requirement by EITI that the awarding of contracts and licences needs to be disclosed. Contract transparency under the EITI Standard means the disclosure of the full text of any contract, licence, concession, production sharing agreement, or other agreement granted by or entered by. This government provides the terms for exploiting oil, gas and mineral resources. This includes the full text of any annexure, addendum or rider which establishes details relevant to the exploitation rights or the

execution thereof and the full text of any alteration or amendment to these documents.[41] Refer to Annexure 2, Figure 5.4 - an illustration depicting how the EITI works in three steps 5.2.3. The EITI Standard requires several disclosures around the contracting and licensing process, and the EITI open data policy encourages implementing countries to incorporate these into ongoing government and corporate reporting systems rather than relying on annual EITI reports.[42]

Contract disclosure is a mitigating factor in dealing with corruption, mobilising revenues, building trust, and negotiating fair deals for the country's resources. The disclosure also guides relevant stakeholders, precisely multistakeholder groups (MSGs), on ways of addressing rising issues about contract awarding, such as approaches to contract disclosures, practical steps, and ways of addressing barriers.

3.3.3. High-level audit considerations

The award of contracts and licences follows the same principles as a public procurement process. Although the awarding process will differ from country to country, a few steps are fairly generic and should be audited. The SAI should assess whether:

- The chosen licensee/contractor fulfils all the qualification criteria set in the legislation. The operator must possess the correct qualifications and the appropriate competence.
- The contents of the minerals/petroleum agreements are under the provisions in the legislation.
- If required, the licensee/contractor(s) has set up a separate company responsible for the operations in the country.
- When ending the exploration phase and moving into the development/production phase, the contractor has fulfilled all the obligations in the current commitment period as provided in the contract/licences and submitted a work programme to the government on the obligations for the next commitment period.
- The government acts if the contractor does not comply with the time frames in the contract agreement.
- The contractor reports to the government within the stipulated time frame after minerals/petroleum have been discovered.
- The appraisal programme has been developed under international best practices and standards.
- The government has received a report on the activities in the appraisal period and a written declaration of commerciality.

[41] EITI Policy Brief Africa the Case for Contract Transparency, February 2021
[42] Natural Resource Governance Institute

- The contractor has developed environmental and sustainability impact assessments under the requirements which the government approves.
- The government has received a plan for development and production from the contractor, which has been thoroughly evaluated. The government should approve the plan before contracts for development and production are entered and before construction commences.
- The production permit issued by the government is in line with the production plan developed by the contractor.
- The government has done everything to ensure the contractor maximises the production volume from the minerals/petroleum deposits.
- The licensee/contractor is not granted tax holidays, incentives, or other exemptions. If so, SAI should obtain assurance for the warrant/authority.

3.4. Monitoring of operations

3.4.1. Introduction

The roles and responsibilities of different ministries and agencies need to be clearly defined and enforced to monitor operations in EI effectively. This helps to avoid overlapping or conflicting competencies and roles in monitoring. At the same time, it prevents gaps in regulatory responsibility. Typically, ten key institutions share oil, gas, and mining management responsibilities. They include but are not limited to executive bodies, legislative bodies, sector ministries, regulatory agencies, national resource companies, finance ministry, taxation authority, central bank, economic planning ministry and environment ministry. Close coordination among these institutions is essential to effectively managing the EI sector.

Each institution needs sufficient resources and staff to fulfil its mandate, commensurate with the technical complexities of the oil, gas, and mining sectors. More often than not, requisite capacity is lacking. Technical assistance and the engagement of professional advisers can make an important contribution to capacity building. However, capacity requirements will change if activity moves beyond exploration to development and production.

The allocation of monitoring roles and responsibilities to agencies in the regulatory framework should fully account for environmental and social protection in the sector. For countries with well-developed environmental monitoring capacity, the environmental ministry should be responsible for policy and establishing laws and regulations. A national environmental protection agency or local environmental authorities should be responsible for enforcement. The laws and regulations should specify which

environmental authority is responsible for monitoring and enforcement. They should also specify the procedures for companies to follow in preparing and submitting environmental and social performance data and the procedures for verification and independent testing by the environmental authorities.

The environmental authority should be able to put the institutional arrangements and capacity needed to respond to severe environmental incidents or accidents so that they can be controlled rapidly and investigated thoroughly, with results disseminated to communities and actions taken to prevent reoccurrence. In presenting their plans for approval by the government, oil, gas, and mining sector project sponsors may be reasonably required to demonstrate that they have the organisational capacity to comply with social and environmental impact laws and regulations and with undertakings given in the environmental and social management plan and the closure plan. Environmental performance data should be provided to the government by the project's operator. Environmental performance data should also be provided to local communities in the local language with annual updates.

Monitoring Production

Figure 8: Monitoring production[43]

Monitoring production volumes and related activities may take different forms, such as sampling, analytical testing and measuring quantity, but usually entails regular submission of documentation, such as reports and supporting information by companies and their contractors, as well as physical inspections. When auditing the monitoring process, auditors should obtain documentation of monitoring activities. Auditors should not assume that oversight agencies reviewed documents or cross-checked reports to supporting documents. Auditors should identify how reviews were documented and look for notes by the reviewer about queries and corrections which may have been made.

Key Considerations for Oil and Gas

Systems of accountability and verification are essential to monitor extraction companies' performance in terms of production volumes and environmental and social impacts.

[43] Slide from IGF, OECD and ATAF's virtual training course 2022, Module 1

i. **Production Volumes**

Monitoring production volumes entails reviewing and cross-checking documentation regularly, such as project reports and supporting information, as well as physical inspections of extraction operations and production measuring equipment accuracy.

Although some uncertainty is inherent in any measurement, it is important to avoid bias systematic error that consistently over- or under-measures volumes. Key controls against bias include using the appropriate metre and processing equipment for the resource, observing metre calibrations, observing sales, and verifying volume calculation accuracy.

ii. **Environmental and Social Impacts**

According to the EI Source Book, the two common monitoring tools are Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs). For ESIAs, companies analyse the project's short - and long-term impacts and identify potential mitigation measures and monitoring methods. ESMPs are based on the ESIA but provide more detail on how the company will manage impacts, such as its operating policies, procedures and practices for compliance and reducing negative impacts. Auditors may use these tools to monitor company performance.

Key Considerations for Mining

Like oil and gas, systems of accountability and verification such as accounting procedures and regular independent audits are essential to monitor mining companies' performance in production volumes and minimise environmental and social impacts. Developing a national cadastre and data bank is key to improving transparency, rights certainty, resource-based knowledge, and government revenue estimates of quality and reliability.

i. **Production Volumes**

Monitoring production volumes or the value of material extracted entails auditing producer information regulatory, such as project reports and supporting data, and physical inspections of extraction operations and production measuring equipment to ensure accuracy. However, the process for measuring production volume or material value can vary greatly depending on the mineral being produced, the mineral processing methods being employed, and the type of royalty being assessed. For example, minerals such as stone, sand, and gravel, where processing is usually limited to washing and separation, are generally measured in volume or weight directly at the mine site. In contrast, metal

minerals such as copper may be sold as ore concentrate or refined for various applications. Therefore, copper royalties may be assessed on the volume of ore extracted or the product's value.

Measuring volumes or determining the value of minerals extracted can be further complicated by royalty systems that allow the mine operator to deduct costs associated with refining or smelting. Because of these complexities, a mine producing multiple minerals from the same ore body, subject to different types of royalties, may need to use different methods for recording production volumes or determining market value at different stages in the mineral production process.

ii. **Environmental and Social Impacts**

According to the EI Source Book, when compared with oil, mining operations generally have a larger footprint and thus have greater potential to cause adverse social and environmental impacts. A well-designed environmental and social impact mitigation and monitoring system involves early consultation and participatory monitoring practices at the local community level.

As with oil and gas, two common monitoring tools are ESIAs and ESMPs. For ESIAs, companies analyse short and long-term impacts through all project stages and identify potential mitigation measures and monitoring methods. ESMPs are based on the ESIA but provide more detail on how the company will manage impacts and comply with the conditions required for the project approval process. For more information on matters to consider on environmental and social impacts, auditors can check the section on the EI value chain. Step 7: Implementing Sustainable Policies.

3.4.2. High-level audit considerations

SAIs should audit government agencies and supervisory bodies to ensure that the laws and agreements regulating the exploration, development and production of oil and gas are adhered to. Additionally, government agencies must monitor operations through the full project life cycle. Specifically, auditors should assess:

i. Whether the government has;

- Ensured that appropriate institutional capacity was available at each stage in the EI value chain.
- Ensured that capabilities were available through specialist skills, training and adequate resources.
- Put in place non-overlapping mandates so that each ministry or agency has a mandate with clearly defined competencies and responsibilities and the resources and staff to fulfil the mandate.

- Ensured consistency of approach so that all government bodies work sustainably to achieve extractive development.
- Systems should be established whereby production volumes are recorded in real-time and transmitted to government offices. This can be at the weighbridge of each of the mines.

ii. What are the systems of accountability and verification in place to monitor company performance, such as accounting procedures and regular independent audits?

iii. How do government agencies monitor production volume measurements?

- Is the government examining and testing the volume measuring equipment regularly and under guidance from the regulations?
- Is the government cross-checking company reports and documents against supporting information or other sources?

iv. How do government agencies monitor environmental and social impacts?

- Is the government monitoring progress against the company's ESIAs and associated management plans?
- Is the government assessing penalties or taking other measures to hold companies accountable for negative social and environmental impacts?

3.4.3. Artisanal and small-scale miners (ASM)

Artisanal and small-scale mining operations are characterised by simplified forms of exploration, extraction, processing, and transportation that often involve limited technology in mining activities from easily accessible mineral deposits (OECD, 2018). Artisanal Mining is primarily an informal sector, with limited information about its production, income, operations, and even the location of activities.

Major obstacles facing the industry include a high degree of informality, difficulty in attracting investment funds, the limited commercial skills of artisanal miners, poor health and safety standards and poor mining and processing technologies.

During the past 15 years, changing perspectives on mining have shifted the focus away from large-scale, capital-intensive mining operations and closer to a sector that includes artisanal and small-scale mining to assess a sustainable future.[44] Inspection and monitoring require checking whether miners always adhere to health, safety, and environmental standards. Inspection of mines should be carried out regularly to ensure that miners comply with requirements.

[44] Oil, Gas and Mining Source Book for Understanding the Extractive Industries, 2017

3.4.4. High-level audit considerations on artisanal and small-scale mining

SAIs should conduct audits to establish that:

i. The government has laws and regulations in place to govern artisanal mining operations.
ii. Relevant ministries and government agencies are compelled to ensure that artisanal miners comply with laws and regulations on artisanal mining, where this legal framework has been set up.
iii. The government should try to organise miners into JVs and partnerships to ensure they improve how they pull resources together.
iv. The government must continue taking action on artisanal miners concerning pollution of waterways through mercury use, dam construction, a build-up of silt, poor sanitation and effluent dumped in rivers.
v. The government continues actions to reduce the risks to which artisanal miners are exposed, such as using mercury and cyanide in gold extraction and working without the required personal protective equipment.
vi. Abandoned mines are rehabilitated, as many artisanal miners have lost their lives while mining in old mines that have been left open due to improper mine closure and lack of reclamation.

In the case of environmental audits of artisanal mining where there are no laws and regulations to uphold mining operations, the auditor in carrying out such audits is expected to apply criteria like estimated environmental costs, liabilities and risks associated with artisans' mining sites, systems of establishing priorities and management of mines opened by artisans, comprehensive plans for legalisation through registering the artisans and issuing them with licences in order for them to adhere to environmental laws and regulations.

Examples of audits conducted on Monitoring Operations

i. SAI Kenya - Preparedness of the State Department of Petroleum to Monitor Costs in the Petroleum Sector.
ii. SAI Kenya - Monitoring of Mining Operations by the State Department of Mines.
iii. SAI Kenya - Monitoring artisanal mining operations in Kenya by the Ministry of Petroleum and Mining[45].

[45] P.A.-MINING-NOV.-22-compressed.pdf (oagkenya.go.ke)

iv. SAI Zambia - Compliance Audit Report on the Awarding and Monitoring of Mining Rights for 2017 Accounts, where one of the audit objectives was 'To ascertain whether the Directors of Mines Development, Geological Survey, Mines Safety, and Mining Cadastre carried out inspections and monitoring in order to ensure compliance by mining right holders'. This audit revealed that 'There was no proper coordination between the Ministry and ZRA, who carried out the XRF gunning exercise. Although the ministry is mandated to have a representative at all exit points, a check on the ground revealed no ministry representative at the visited exit points.'[46]

3.5. Revenue assessment and collection

3.5.1. Introduction

The ability of a government to assess and collect taxes, royalties, duties, and other revenues depends on the choice and quality of fiscal regime and fiscal instruments and the administrative and audit capacity and competence in the relevant institutions. Mineral/petroleum extraction activities are subject to various fiscal instruments. These include taxes that apply to all other economic sectors and those specific to the petroleum and mining industries.

In addition, non-tax forms of rent collection (such as royalties, surface fees, bonuses, and production sharing) are often used. They can be considerable and may even exceed tax revenues. When a national mineral/petroleum company exists, the government should receive dividends as a company shareholder. Therefore, Government revenue may consist of several revenue streams, which may also be collected in cash or in kind.

To enable the assessment and ensure completeness of the EI companies' obligation to report and pay such taxes, fees, bonuses, duties, VAT, dividends, shares, etc., it is essential to collect and verify data on the quality and quantity of the volumes produced, consumed, and exported.

Furthermore, assessing the realised prices and the costs invoiced to the EI company is important, particularly when transactions between related companies occur. Using anti-avoidance rules and instruments, the government should correct reported prices that do not reflect market conditions at the transaction time.

[46] https://www.ago.gov.zm/wp-content/uploads/2021/07/Compliance-Audit-Report-on-the-awarding-and-Monitoring-of-Mining-Rights-for-2017.pdf

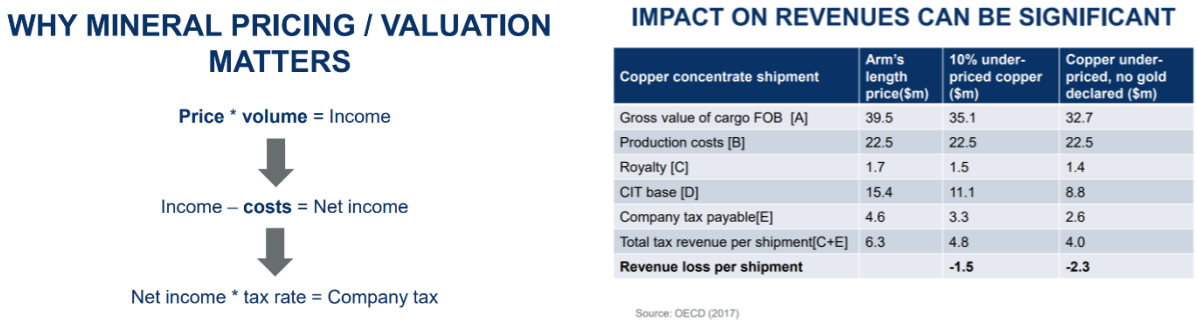

Figure 9: Mineral pricing and its impact on revenues [47]

In tax evasion, such as surtax, additional tax and criminal proceedings should be considered under the legal system. All payments and proceeds to the government related to EI should be reconciled at each payment point/account. They must be ensured, funnelled and deposited into treasury accounts (preferably at the central bank).

3.5.2. Role of government

The government is responsible for collecting various forms of revenue from EI activities. Table 5 describes the five main EI revenue fiscal regimes the government can use to get a share of the proceeds.

Table 5: Examples of revenue

TYPE OF REVENUE	CHARACTERISTICS	PROS AND CONS		EXAMPLES OF REVENUE
Upfront	Upfront revenues are meant to reflect the present value of EI resources.	Instant revenue to the government's treasury.	Does not reflect the real value of the resources.	Auction of exploration rights, licence fees, area fees, signature bonus and transportation fees
Gross taxes	A tax is based on the production, not the actual profit made. Costs are, therefore, irrelevant.	Easy to administrate; 'just multiply the price of a commodity by production volume multiplied by the royalty rate'.	This may detract from investments because costs are not accounted for. This tax is regressive and not progressive, meaning the government will	Royalties Domestic market obligations (an effective royalty) Certain types of windfall tax Ground rent tax (typically on hydro-

[47] Slides from IGF, OECD and ATAF's virtual training course 2022, Module 2

TYPE OF REVENUE	CHARACTERISTICS	PROS AND CONS		EXAMPLES OF REVENUE
		Gives the government early revenue before breaking even.	not increase with increased profit.	electric and nuclear power)
Field taxation (most applicable for petroleum)	A special tax regime for the oil/gas block with a cost recovery limit and profit sharing. Based on contracts, not law.	Gives instant revenue for govt. Preferred by IOCs because of the predictability of terms. With sliding scales, the government's take will increase production volumes and oil and gas prices.	Different contracts for different oil/gas blocks create complexity for revenue authorities. The government cannot easily change the terms.	Production sharing agreements/ contracts
Corporate net income tax	Tax is paid on a profit base after costs have been deducted. The law determines the tax rate.	By taxing profit, the government's take will increase. Costs are considered, and investments become attractive.	The risk of transfer pricing puts a big burden on revenue authorities. A taxable profit may only occur some years after production, which may create an expectation gap for the public.	Profit income tax Other taxes include: • Commercial tax • Corporation/ Company income tax • Capital gains tax • Withholding tax • Pay-as-you-earn tax (deductible)
Government participation	The government has a share in the EI projects and is part of a consortium.	Gives the government direct access to profit. Enables the country to build local content.	The government takes big risks. In countries with high corruption EI- government companies may become unmanageable.	Government shares in projects, state-owned companies

Five aspects of the different fiscal regimes

- Risk sharing refers to how much risk the government bears. If the government participates through being a shareholder, it will need to cover a similar share of the costs, thus taking a huge risk.

Table 6: Characteristics of the different fiscal regimes

Five aspects	Upfront	Gross taxation	Field taxation	Corporate net tax	Government participation
	- Auction of rights *- Licence fees*	*- Royalty* *- Production taxes*	*Ring fence and/or PSA*	*Ordinary profit tax + economic rent tax*	*- National oil company* *- Shareholder in licences*
•	Minimal risk sharing	→			Maximum risk sharing
•	Simple system	→		Complex system	
•	Early revenue	→			Late revenue
•		Negative incentives	→		More neutral
•	The low share of economic rent	→			The high share of economic rent

However, if the government receives a single payment by auctioning exploration rights. In that case, the government does not need to worry about costs, and the companies take all the risk of non-discovery.

- The type of system refers to how difficult it is for the revenue authorities to calculate the correct revenue to be collected. With corporate net tax, the companies have big incentives to book as much cost as possible to reduce the tax base. Revenue authorities need highly competent staff on transfer pricing to mitigate this risk. With royalties, however, the government does not need to verify costs.
- The timing of when the government receives its revenue will vary among the different fiscal regimes. With royalties, for example, revenue will come at the same time as production begins, as it can be based on production estimates. This makes meeting big expectations from the public of extraordinary revenues from the new industry easier. However, relying on tax on profit will delay revenue because companies will need to cover their costs first.

- Incentives are affected by the type of fiscal regime. Royalties are not so popular among companies because costs are not considered. Thus, if a project has a five per cent profit and a ten per cent royalty on production, it means that the company will probably have a five per cent loss, thus discouraging investment and creating negative incentives. Tax on profit, however, is related to the project's profitability and cash flow and will, therefore, not affect their investment decision negatively.
- The government's share of economic rent will increase when moving to the right side of the table. It is when commodities are sold on the open market that the real value is revealed. Auctions and royalties are applied before the EI commodities are sold on the open market, and the government may get a share far less than the actual value. With participation, however, the government sells the commodities and gets direct market access.

The main types of government revenue collected from EI, namely taxes and royalties, are further explained below.

Taxes are calculated and assessed according to the relevant tax regulation, e.g., Corporate Income Tax Act or Mineral/Petroleum Profits Tax Act. Gross income is calculated by multiplying the realised volume or mineral/petroleum with arm's length prices. The deduction of allowable expenditures from gross income calculates taxable income (profit). Allowable expenditures are normally detailed, specified in the legal framework, and should be necessary, appropriate, economical, and connected to the mineral/petroleum operations. The revenue authorities (tax officials) must assess and control/scrutinise whether gross income and expenditures are calculated and reported per the legal basis (acts) in tax returns, etc. This requires timely inspections/checks of tax returns and more thorough scrutiny through tax audits to certify that tax returns are in accordance with taxpayers' accounts.

Royalties are normally assessed based on the production of minerals/petroleum, price, and quality. There are normally different rates for onshore and offshore fields, with offshore fields running deep being the lowest. The amount of royalty to be paid on petroleum production, for example, is usually based on the following parameters:

- Production figures of the operating company.
- Prevailing prices for the petroleum produced and
- A royalty rate (calculated as a percentage of value).

To ensure that all taxes and royalties have been collected, it is essential to solicit and verify data on the volumes produced, consumed, and exported and on the prices realised by the seller of

minerals/petroleum. Reliance may be placed on the metering systems of the companies, but the accuracy of these readings should be checked regularly by the relevant government agency.

Infrastructure and refineries

Infrastructure like pipelines and refineries can be revenue sources for the government through transit fees and government share of the project. Different countries consider different conditions for such strategic infrastructure developments.

The considerations could be that the project is private-sector-led or government-led, depending on the availability of funds. However, what is certain is the need for such projects. Undermining these could take the form of smelters or mineral beneficiation plants.

Revenue from SOE/NOC

State-owned companies (SOE) or national oil companies (NOC) often have a role in selling the minerals or oil that is the state's share. The state could receive minerals or oil through several arrangements, including the NOC's extraction, its ownership shares in a JV, participation in a production sharing agreement, and oil paid by companies to the government to cover their royalty or tax liabilities, see Chapter 4.1 for more details about SOE and NOC.

Risks to Revenues – some examples

Publish What you Pay's report 'Many Ways to Lose a Billion: How Governments Fail to Secure a Fair Share of Natural Resource Wealth,' [48] by Don Hubert, summarised the risks related to revenues and provided examples from all over the world see Table 7 (ref. Textbox 1 on page 10 in the book).

This can help enable the auditors to get an overview at a glance. It also includes examples from six AFROSAI-E countries, i.e., Mozambique/South Africa (case of natural gas) and Sierra Leone iron ore sales under-reported project revenues from iron ore sales, Tanzania (inflated costs in the mining sector), and Uganda/Mauritius (the case of Heritage Oil, treaty shopping).

For details on these case studies, we recommend downloading a copy of the book (use the link in the footnote) and reading it, as it can help the auditors understand the risks related to the revenues.

[48] Many Ways to Lose a Billion: How Governments Fail to Secure a Fair Share of Natural Resource Wealth — Publish What You Pay – Canada (pwyp.ca)

Table 7: Risks to revenues with examples

Textbox **1:**
Revenue Risk Framework and Case Studies

		Risks to Revenues	Examples
Tax Rates	TAX BREAKS	**Tax Incentives** • Accelerated depreciation **Tax Holidays** • Corporate tax exemptions	**Peru Mining:** Accelerated depreciation **Mali Mining:** Corporate tax exemptions
Tax Rates	TREATY SHOPPING	**Withholding Taxes** • Dividend payments • Interest payments **Capital Gains Tax**	**Turquoise Hill** (Mongolia / Netherlands) **Heritage Oil** (Uganda / Mauritius)
Tax Base	UNDER-REPORTED PROJECT REVENUES	**Production Volumes** • Under-reporting production • Non-reporting of by-products	**Congo Brazzaville:** Diamond smuggling **Chile:** Tax avoidance on tailings production
Tax Base	UNDER-REPORTED PROJECT REVENUES	**Sale Price** • Intra-firm sales agreements • Excessive marketing fees • Forward sales / price hedging	**Uranium Sales:** Cameco (Canada) **Natural Gas:** Mozambique South Africa **Iron Ore Sales:** Sierra Leone **Marketing Hubs:** Australia / Singapore
Tax Base	OVER-REPORTED PROJECT COSTS	**Ineligible Costs** • Falsified or duplicate invoices **Misallocated Costs** **Inflated Goods and Services** • Over-priced used machinery • Transport (rail, ports, pipelines) • Management fees	**Chile Mining Company:** False invoices **Indonesia:** Cost recovery abandoned due to abuse **Timor-Leste:** Cost claims against producing block **Alaska:** Inflated pipeline and shipping costs **Tanzania:** Inflated costs in the mining sector
Tax Base	OVER-REPORTED PROJECT COSTS	**Debt Financing** • Thin capitalization • Abusive interest rates	**Chile:** Mining company debt financing **Chevron Australia:** Financing costs disallowed

Resources for Development Consulting (2016)

Many Ways to Lose a Billion:
How Governments Fail to Secure a Fair Share of Natural Resource Wealth

A Framework for Assessing Revenues Risks
Page 10

3.5.3. Key aspects of expenditure in the EI sector

Exploration expenditure is incurred when companies start searching for petroleum and gas. Wells used to explore can be either exploratory wells − used to find new reservoirs or development wells – or by drilling into the known extent of a producing reservoir. There are generally three categories of incurred

expenditure: cash operating costs, general and administrative expenses, and depletion and depreciation expenses (non-cash costs). How the expenditure is audited depends largely on how the expenditure is accounted for, which is normally specified in the contract with the company.

One method, the '**successful efforts**' method, allows a company to capitalise only on those expenses associated with locating new petroleum and natural gas reserves. For unsuccessful (or "dry hole") results, the associated operating costs are immediately charged against revenues for that period.

The alternative approach, known as the '**full cost**' method, allows all operating expenses relating to locating new petroleum and gas reserves − regardless of the outcome − to be capitalised.

Exploration costs capitalised under either method are recorded as long-term assets. This is because petroleum and natural gas reserves are considered productive assets for a petroleum and gas company, like the lathes, presses and other machinery used by a manufacturing concern. Generally Accepted Accounting Principles (GAAP) require that the costs to acquire those assets be charged against revenues as the assets are used.[49] As per the ISSAIs, auditors need to understand and evaluate the appropriateness of the relevant accounting framework. Legislative requirements on accounting for expenditure items include the provisions of regulations, instructions, and the provisions in the contract.

3.5.4. Specific audit focus area – transfer pricing

Transfer pricing (TP) is the estimated value of physical goods, intangible property or providing services between related/associated parties. Such parties or enterprises are commonly named the controlling company, holding company, parent company, proprietary company, subsidiary and subsidiary company, joint ventures, or affiliates.

Since the parties are related/associated, free market conditions are absent. The absence of free market conditions makes it possible to shift taxable profits by fixing prices in the most favourable way for the parties. There is an inherent risk of shifting of profit where cross-border transactions happen within multinational entities (MNEs), whereby the profits are not properly taxed where value is created or added due to transfer mispricing.

Transfer pricing can be defined as a commonly accepted methodology to determine free acceptable deviation from market prices (arm's length). Authorities, as well as private companies, can use the methodology. It will help tax authorities in their efforts to reduce tax base erosion, and regarding MNEs,

[49] http://www.investopedia.com/articles/fundamental-analysis/08/petroleum
http://www.investopedia.com/articles/fundamental-analysis/08/oil-gas.asp - ixzz24HQuRRl6

it can identify those parts of the enterprise that are performing well or others that are not. An MNE could also suffer double taxation on the same profits without proper TP.

The arm's length principle is described in Article 9 of the OECD Model Tax Convention as follows: Where 'conditions are made or imposed between two enterprises in their commercial or financial relations which differ from those which would normally be made between independent enterprises, then any profits which would, but for those conditions, have accrued to one of the enterprises, but, because of those conditions, have not so accrued, may be included in the profits of that enterprise and taxed accordingly'.

Most countries have implemented a GAAR in their legislation that can be used to mitigate transfer mispricing.

Why transfer pricing is important to the SAIs within extractive industries

Extractive industries require huge technical investments and specialised expertise that the local mining or petroleum company buys from an affiliated company abroad. Africa also has large deposits of minerals and petroleum. An estimated sixty to seventy per cent of world trade comprises transactions between subsidiaries within MNEs. The absence of free market conditions enables profit shifting between countries and, thus, tax base erosion in any particular country takes place through aggressive tax planning. According to Global Financial Integrity (GFI) estimates, which are largely credited as the foremost method of sighting illicit financial flows (IFF), the share involving trade mispricing (transfer pricing) was estimated to be more than eighty per cent in the 2015 publication (Kar and Spanjers, 2015), ref. Section 4.2.

Transfer prices are significant to taxpayers and tax administrations because they largely determine the income, expenses, and taxable profits of associated companies in different tax jurisdictions. To illustrate the opportunity for profit shifting within EI, a survey of ten of the world's most powerful EI giants showed that thirty-four per cent of their 6,038 subsidiaries were in tax havens.[50]

Transfer pricing is a global problem for governments, but it is especially daunting in developing countries, mainly because of weak institutions (revenue authorities), legal frameworks, and lack of discipline in the public sector. Transfer pricing is therefore important to SAIs in their audit/supervision

[50] Mathiason, N. (2011). *Piping Profits. Mapping the 6,038 subsidiaries owned by ten of the world's most powerful Extractive Industry giants and the quest by Latin American journalists to find out more.* Oslo: Publish What You Pay Norway. http://www.publishwhatyoupay.no/pipingprofits

of government performance (i.e., Ministry of Finance and revenue authority) on their assessment, collection, and tax audit of revenues from MNEs in EI.

Profit shifting between companies

As some jurisdictions worldwide have a low- or no-income tax for companies (tax havens), there are economic incentives for MNEs to shift profit between their companies in high and low tax jurisdictions. Profit can be shifted by setting the price (invoicing) higher than the market price on services and goods, captives (insurance) and intangibles to a company in a normal tax rate country. The abnormally high price can then be deducted for tax purposes or as cost recoverable in the latter country and thus reduce the legal tax/revenue base.

Figure 1 from "How to Lose a Billion" depicts in Figure 10 how money flows regarding profit shifting when the companies use subsidiaries to reduce taxes.[51]

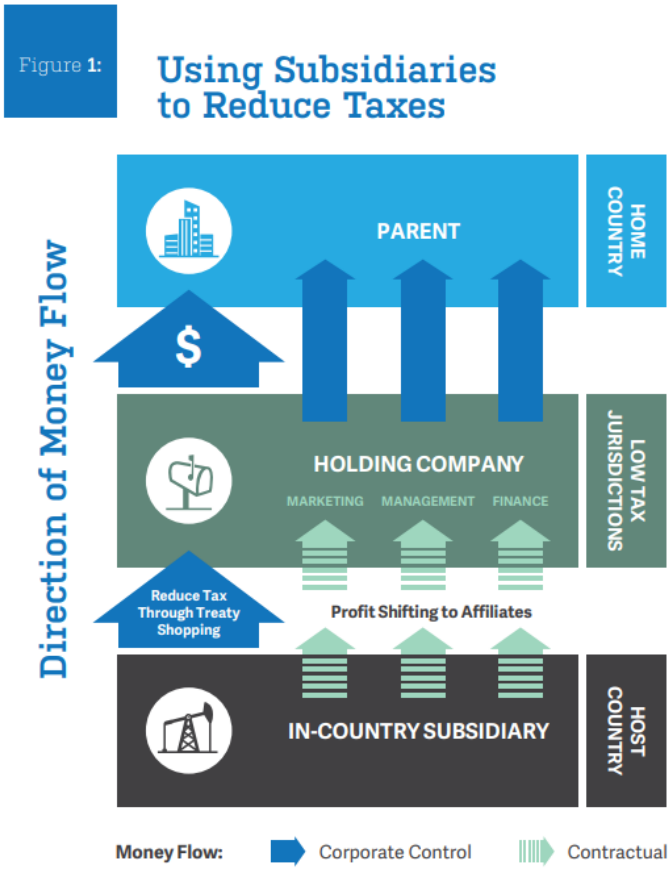

Figure 10: Using subsidiaries to reduce taxes

[51] many-ways-to-lose-a-billion-how-governments-fail-to-secure-a-fair-share-of-natural-resource-wealth.pdf (squarespace.com), page 24.

It is important to note that the invoicing country does not have to be a tax haven. Some seemingly normal tax rate jurisdictions have special regulations that allow cash flow through their jurisdiction without taxation, and the profit might eventually end up in a tax haven.

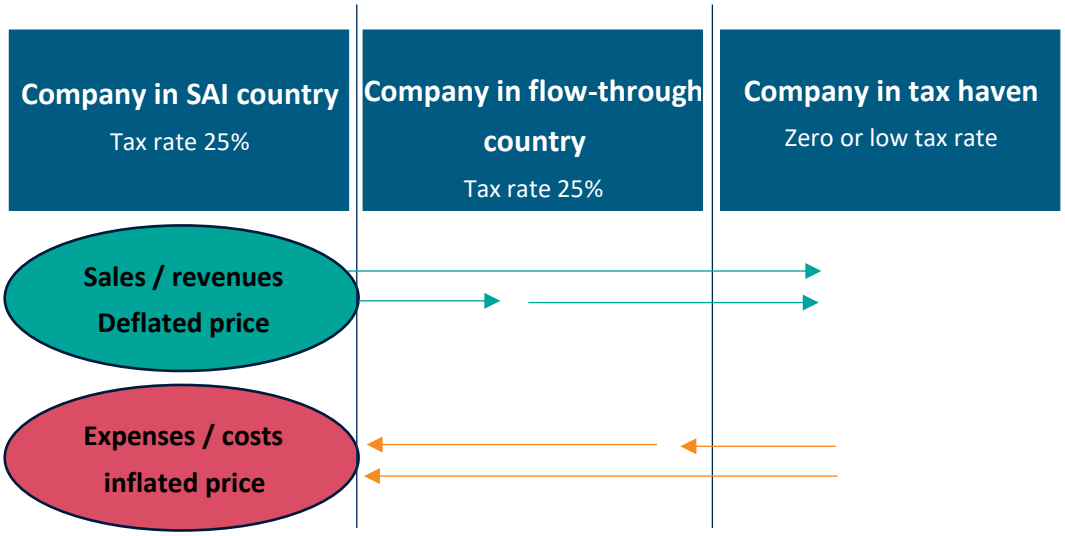

Figure 11: Illustration of transfer pricing

Transfer pricing is a high-risk area in countries with EI due to the nature of the business, which could include MNEs, advanced technical expertise and knowledge, large investments, valuable assets, and intangible property. Transfer pricing has consequences for calculating recovery costs within production sharing agreements, and it is an important issue in ring-fencing. Cost recovery statements normally contain costs incurred through services performed by an associated enterprise. Since the sister company and the local company have the same owner, the companies have incentives to exaggerate the costs incurred to deduct more costs through cost recovery. Other than tax purposes, it is indifferent to the company where income and costs are located.

How to audit transfer pricing and what the SAI auditors need to know

Revenue authorities and SAIs are the most important institutions to prevent transfer mispricing. SAIs in some countries have direct authority to audit cost statements according to production sharing agreements and, therefore, have organisations such as a tax authority in place. Tax authorities (and some SAIs) accomplish TP prevention through tax audits on companies or TP risk assessment, comparability analysis and function analysis. Reassessments by the tax authorities might be challenged due to a complaint from a company to tax tribunals or courts. Under certain contracts, particularly PSAs, the SAI and revenue authority can challenge mispricing through an Appeals Board/Advisory Committee or ordinary judiciary. They can thereby report tax evasion and fraud cases for indictment/prosecution.

Where an SAI has no direct authority to audit cost statements, the SAI's tasks should primarily be monitoring and conducting compliance and performance audits of the tax authority on its accomplishment and performance on TP issues.

There are various TP rules and regulations across the globe. Common to them is that they contain rules on what kind of information companies should present to government bodies to enable them to control the price set between affiliated parties. Furthermore, they contain pre-approved methods of calculating an arm's length price. For OECD countries, there are five pre-approved methods, namely;[52]

- Comparable Uncontrolled Price (CUP): Prices between unrelated parties.
- Cost Plus Method: Comparing gross profit to cost of sales.
- Resale Price Method (RPM): Comparing unrelated gross profits between unrelated parties.
- Profit Split Method (PSM): Delineation of interrelated and incomparable transactions where a substance (risks, efforts, tasks, contributions, etc.) is allocated to find an arm`s length profit split between the related companies.
- Transactional Net Margin Method (TNMM): Testing net profit between related and unrelated parties for similar transactions. Practical solution when other methods do not solve the TP problem.

Other jurisdictions may have more pre-approved methods; for example, the USA has seven. Some countries limit the arm's length considerations so that the companies must use one of these methods to prove the arm's length, whereas other countries allow the presentation of other methods to prove the arm's length. Either way, the reasoning behind all the methods used is to substantiate that the transaction/agreement is economically sound and could have been concluded by unaffiliated parties (arm`s length). To do this, extensive amounts of documentation need to be examined. The documentation should disclose the nature of the transaction, the amounts paid and a comparable price/contract, which can substantiate that the price agreed upon does not significantly diverge from what two unrelated parties could have agreed. Today, almost all MNEs will have this information ready for authorities' inspection when filing their tax returns.

Examples of transfer pricing audit findings

- SAI Botswana tabled an audit report for 2022 on 'Collection of Royalties and Dividends by the Department of Mines'. It was discovered that the country lost billions of Pula due to deliberate

[52] http://www.transferpricing.wiki/general-transfer-pricing-information/transfer-pricing-methods/

misinvoicing.[53] One digital newspaper[54] commented on this audit and wrote, "The Auditor General released a ground-breaking report suggesting that the country has been short-changed over the years by the mining sector in terms of tax and other revenues".

Findings from EI audits in other countries:

- Reluctance or unwillingness to provide mandatory TP documents for audit.
- Weak practices in revenue authority's resoluteness regarding taxpayer's compliance by providing TP documentation by the deadline.
- Lack of competence and resources in revenue authority.
- General assistance costs invoiced from an affiliated company are not free of the affiliate's shareholder cost, mixed with the cost of providing services to affiliated companies.
- Indiscriminate rate of services provided, regardless of staff experience or merit.
- Duplication of costs (liable not to be discovered/detected in TP arrangements).
- Insurance/captives – overpriced by a subsidiary in a tax haven.
- Use of intangibles – overpriced by a subsidiary in a tax haven.
- Loans and financing/funding from related companies/affiliates with inflated interest rates.
- Restrictions to audit TP in clauses in PSA (void terms in PSA).
- 973 USD – Price on a plastic bucket.[55]
- 52 USD – Price on rocket launcher.[56]
- 13 USD – Price on camera recorder.[57]

3.5.5. High-level audit considerations

The SAI needs to thoroughly map the legislation and contracts/agreements that have provisions on revenues from EI. The legislation on revenues from EI might be in separate petroleum or mining taxation acts, or they may be handled in the general income tax act of the country. The most important revenue provision for production sharing agreements/contracts is in the contract. There is likely to be a revenue leakage in most of the countries. The auditor should ask: Where are the revenue leakages coming from?

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[53] 59th PUBLIC ACCOUNTS COMMITTEE | PERFOMANCE AUDIT ON COLLECTION OF ROYALTIES AND DIVIDENTS BY DEPARTMENT OF MINES | By BWParliament | Facebook

[54] PressReader.com - Digital Newspaper & Magazine Subscriptions

[55] Pak, S. J., Zdanowicz, J. S. (2002). *U.S. Trade with the World.* Malvern/Miami: Trade Research Institute: http://www.oss.net/dynamaster/file_archive/040318/50b167ce2bb58f256cf8c2225aa4da82/OSS2003-01-09.pdf

[56] *Pak, S. J., Zdanowicz, J. S. (2002). U.S. Trade with the World. Malvern/Miami: Trade Research Institute:* http://www.oss.net/dynamaster/file_archive/040318/50b167ce2bb58f256cf8c2225aa4da82/OSS2003-01-09.pdf

[57] Pak, S. J., Zdanowicz, J. S. (2002). *U.S. Trade with the World.* Malvern/Miami: Trade Research Institute: http://www.oss.net/dynamaster/file_archive/040318/50b167ce2bb58f256cf8c2225aa4da82/OSS2003-01-09.pdf

See Figure 12 and try to understand and analyse where revenue leakages are coming from in your country.

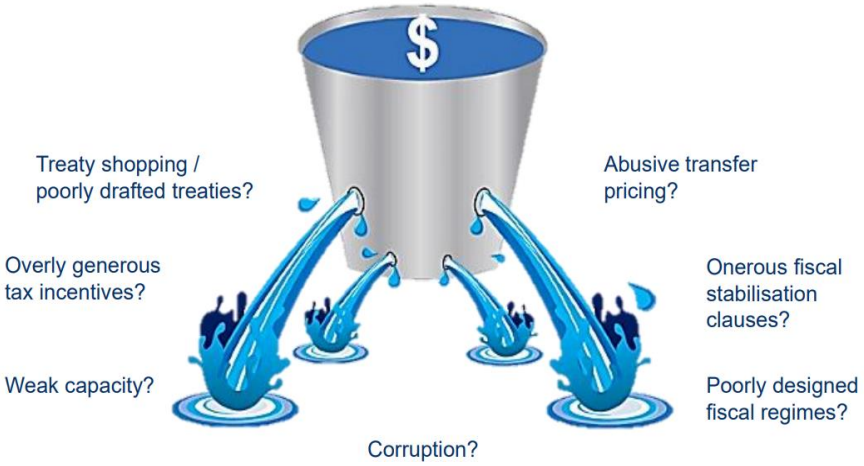


Figure 12: Sources of revenue leakages[58]

The SAI should assess whether:

- The reported volumes and quality of produced minerals and petroleum are correct.
- The tax is calculated based on the rate specified in the relevant law, act, or contract.
- The deduction of costs for a specific income year only relates to the relevant contract area (ring-fencing).[59]
- Deductions of funds going to a decommissioning fund reserve are relevant.
- The recoverable costs align with the eligible deductible expenditures defined in the PSA/PSC or the taxation act (necessary, appropriate, economical, and connected to the mineral/petroleum operations).
- The transactions' prices between related companies are assessed and tested for transfer mispricing.
- The value of petroleum/minerals, etc., derived from tax revenues, is calculated and measured under legislation/contracts.
- The revenue authority ensures that tax returns are submitted timeously and complete for correct calculation/assessment for revenue.
- The revenue authority ensures timely payments and reconciliation of accounts in accordance with the legislation/contracts (as specified in the taxation act/PSA/PSC).
- The revenue authority ensures that all licences/contractors are captured in the relevant revenue systems.

[58] Slide from IGF/OECD/ATAFs virtual training 2022

[59] In many countries, such as Uganda and South Sudan, companies can only deduct the costs that relate to activities within the contract area. In countries like Norway, the ring fencing is between offshore and onshore. Thus, companies can deduct *all* their costs from all their contract areas combined, but not costs related to onshore activities/operations.

Transfer pricing audit considerations

The tax auditor should consider the country's domestic legislation regarding key TP principles, including the arm's length principle, TP methods, comparability analysis, intangible property, intra-group services, cost contribution agreements, TP documentation, administrative approaches to avoiding and resolving disputes, safe harbours, and other implementation measures. The legal framework differs from country to country. While some jurisdictions have strong laws and regulations to prevent or resolve transfer mispricing, others have weak laws or no regulations. In this case, a tax auditor should consider whether applying a GAAR, the OECD guidelines on TP and/or any other international best practice is legally possible. A SAI's mandate is normally limited to controlling how tax authorities handle TP risks. Audits on this subject may be conducted either as compliance or performance audits. Some examples of compliance and performance audit topics are listed below.

Compliance audits

Examine/check/survey/scrutinise relevant revenue authorities on their:

- Reliability/trustworthiness of reports on controls and tax audits.
- Paramount policies/requirements by parliament and/or superior authority.
- Compliance with legislation, e.g., tax audit performance and internal quality assurance.
- Compliance with provisions in contracts/agreements, i.e., monitoring, audits, surveillance, etc.
- Use policy instruments, e.g., documentation deadlines, sanctions and penal provisions, surtax.
- Accuracy in the selection of tax audit subjects.
- Results of tax audits, reassessment, and controls in increased revenues.
- Use of information exchange agreements (IEAs), if any.
- Use other relevant international agreements/treaties (assistance to collect abroad).

Performance audits

Assess the performance of the relevant revenue authority on:

- Steering and control by superior authority (Ministry of Finance).
- Growth and progress in the quota of taxpayers selected for tax audit/control.
- Organisation, competence, and capacity on TP.
- Survey of taxpayers' behaviour.
- Vignette test of civil servants' competence on TP.
- Case administration/tax audits and time consumed – cause.
- Effects of tax audits, reassessments.
- Controls in increased revenues.

Financial audits *(not relevant for all SAI`s)*

- ❖ Direct audit of cost statements from EI company.
- ❖ Direct audit of revenue statements from EI company.
- ❖ Assess EI company reports/tax returns with comparable databases regarding, i.e., volumes produced and quality (Ministry of Finance, Ministry of Mines, Petroleum Authority, Customs/ASYCUDA[60]).
- ❖ Assess and compare EI company TP policies and practices with acceptable national/international standards.
- ❖ Stratify and select costs and revenues to/from affiliated companies based on risk and materiality to ascertain in accordance with arm`s length principle.

Table 8: Revenue loss in the EI sector - and mitigation

Revenue loss in EI-sector - and how to mitigate				
Affected source	**Cause**	**Manipulation/ evasion/avoidance**	**Government Mitigation Good governance**	**SAI response**
Tax rate	Negotiation competence, skills, bribery	Tax incentives	Improve negotiation skills, contract transparency, renegotiate contracts, anti-corruption work, EITI (publish what you pay/receive)	Compliance and performance audit, supervision, recommendation through (annual) audit reports
		Tax exemptions/holidays		
	Treaty shopping	Withholding tax	General Anti-Avoidance Rule (GAAR) Renegotiate treaties	Compliance and/or performance audit, recommendation through (annual) audit reports
	Change of ownership	Capital gain tax	Supervision, reporting mechanisms	
Tax base	False state-ments/returns Fraud	Volumes and quality of production	Revenue Audits, Assess/analyse relevant databases, Use of provision on offences in taxation act and criminal act	Compliance and/or performance audit, recommendation through (annual) audit reports
	Underreporting-Transfer Pricing	Sales price	Tax/revenue audit General Anti-Avoidance Rule (GAAR) Use of provision on offences in taxation act and criminal act	Compliance and/or performance audit, recommendation through (annual) audit reports
	Inflated costs/ Transfer Pricing false returns/ statements Overreporting	Ineligible costs	Tax/revenue audit General Anti-Avoidance Rule (GAAR) Use of provision on offences in taxation act and criminal act	Compliance and/or performance audit, recommendation through (annual) audit reports
		Misallocated costs Inflated goods and Services	Tax/revenue audit General Anti-Avoidance Rule (GAAR) Use of provision on offences in taxation act and criminal act	Compliance and/or performance audit, recommendation through (annual) audit reports
		Debt Financing	Tax/revenue audit General Anti-Avoidance Rule (GAAR) Use of provision on offences in taxation act and criminal act	Compliance and/or performance audit, recommendation through (annual) audit reports

[60] https://asycuda.org/en/about/

There is a risk of manipulating the sales price, and auditors should question if there is an opportunity for the companies to influence the sales price. Table 9 gives an overview of which commodities sales price is more likely to be influenced/manipulated. If the prices are manipulated, it will affect revenues as the tax base will be reduced.

Table 9: Sales price risk of commodities

Low	Medium	High
Refined base/precious metals (e.g. gold, copper) **Physical concentrates** (e.g. copper, nickel) **Bulk commodities** (e.g. iron ore, manganese) **Metallurgical products and specialty metals** (e.g. alumina, doré)	**Metallurgical products and specialty metals** (e.g. blister copper alumina, doré) **Gemstones** (e.g. industrial diamonds)	**Non-metallic industrial minerals** (e.g. barite, fluorite, graphite, industrial diamonds, beryl) **Gemstones** (e.g. refined diamonds and other gems)

In addition to all the risks mentioned in this chapter, auditors need to pay close attention to related party financing, as it is overrepresented in the extractive sector. One has to ask -Why is related party finance necessary?

- Related party debt is not reported at the macro level and can impose an additional cost on the source country.
- Tax treatment differs between equity and debt.
- Excessively high related party debt and interest rates impose a fiscal cost on countries by eroding their tax base.
- Related party financing risks are overrepresented in the EI sector due to the capital-intensive nature of mining and hydrocarbon projects.
- Related party financing also has longevity in that financing expenses can be present from the first investment and be present for the entirety of the project if the debt is not paid up.

Below are some of the indicators of low risk:

- Rate – if it is broadly aligned with what the group borrows.
- Currency – consistent with the cash revenues of the local business.
- Duration of the loan – most financing arrangements are for five years or less.
- Type of loan – vanilla debt, not a hybrid instrument.
- Derivatives – used only in limited circumstances to hedge real transactional risks.
- Commercially realistic outcomes – does it leave enough profits post interest costs for shareholders to be happy?

3.6. Revenue management and allocation

3.6.1. Introduction

The extraction of minerals/petroleum has the potential to generate massive revenues. At the same time, extraction of these resources is no guarantee for ensuring prosperity, equal distribution of wealth, reduction of poverty and long-term fiscal sustainability. On the contrary, revenue from these resources can deepen existing corrupt practices and illegitimate power structures. Therefore, the revenue generated should be distributed and managed to benefit the whole country across generations.

The NRGI Reader, March 2015, explains revenue allocation as the way a government distributes natural resources to different levels of government, institutions or directly to citizens. When the institutions receive the resource revenues, they establish procedures or principles to plan, organise, staff and control operations to use the revenues allocated to them, termed revenue management.

There are different ways of designing a system for allocating and managing revenue from natural resources. It is considered ideal practice to plan for and set aside part of the revenues to finance countries' present needs (national budget). The remaining revenue is committed to interest-bearing reserve funds. The management and allocation of revenue from minerals/petroleum is to be governed by rules and procedures to ensure responsible, accountable, and sustainable use. According to the EITI, the key steps in transparent and sound revenue management and allocation are to:

- Prepare appropriate macroeconomic policy responses to mitigate any negative impact from exchange rate appreciation.
- To make savings decisions to facilitate (1) the smoothing of public expenditure considering revenue volatility and (2) asset accumulation considering the finite nature of oil, gas, and mineral resources.
- To allocate public expenditures judiciously, nested within a medium-term expenditure framework and aligned with a country development strategy that ensures adequate scrutiny and appraisal of public investment choices and provides sound revenue sharing policies.

3.6.2. Petroleum and mineral sovereign wealth funds

With worldwide economic price booms, government revenue and accumulation of ‘Windfall profits’ have reached unprecedented proportions. For countries with large, expected revenues, petroleum and mineral sovereign wealth funds provide a way to collect revenue that the government cannot efficiently spend during a year. To avoid such wasteful expenditure or spending that overheats the domestic

economy, 'oil and mineral funds' have been created in several producing countries. The funds may have some or all the following objectives:

- To set aside revenue that would be used to smooth expenditure over time, thus countering the effects of price volatility and variations in production levels.
- To save part of the revenue derived from the current exploitation of natural resources for the benefit of future generations.
- To invest savings in other countries to avoid overheating of the domestic economy.
- Depending on the magnitude of the accumulation, to insure against extraordinary events (for example, natural disasters).

Countries that have just started production usually aim not for a permanent savings fund but a temporary but constant expenditure level for several years to kick-start their development. Countries making substantial revenues from EI often start by eliminating high-interest debt before implementing policies to invest surplus funds. It can also happen that the oil and gas booms generate an increase in public debt. Caution should be exercised to ensure that countries are not too optimistic about future revenues from EI.

This can lead to over-committing the anticipated revenue, whereas a price fall would translate to lower-than-expected revenue, which may prove insufficient to service the debt. Some countries decide to have a stabilisation fund that acts as a buffer against a sharp drop and rise in commodity prices. In South Sudan, the legal framework[61] allows for an 'Oil Revenue Stabilisation Account' and a Future Generation Fund to be established.

The Oil Revenue Stabilisation Account shall contain excess revenue that may be used when oil prices suddenly drop. One such incidence was in 2014 when the price dropped below 30 USD. For some countries, dependent on having an oil price of 75 USD to break even, this represented a potential fiscal crisis. However, the National Audit Chamber of South Sudan's compliance audit of The Accounts of Net Oil Revenue of The Oil Producing States and Communities 2011-2020[62] revealed a series of irregularities in the management of petroleum revenue contrary to the law.

The lesson learnt is that the government should consider saving the extra revenue in times of high oil prices rather than by inflating the state budget. There will always be times when the oil price drops

[61] Petroleum Revenue Management Act 2013
[62] Compliance Audit Of The Accounts Of Net Oil Revenue Of The Oil Producing States And Communities 2011-2020 – The National Audit Chamber of South Sudan (nac.gov.ss)

because of trends in the world economy, and the government needs to be prepared to meet that challenge.

SAIs should also consider that having an act and regulations in place is insufficient to ensure that the revenues are allocated to the funds as instructed in the law. An audit from South Sudan showed that many revenues did not reach the fund due to irregularities.

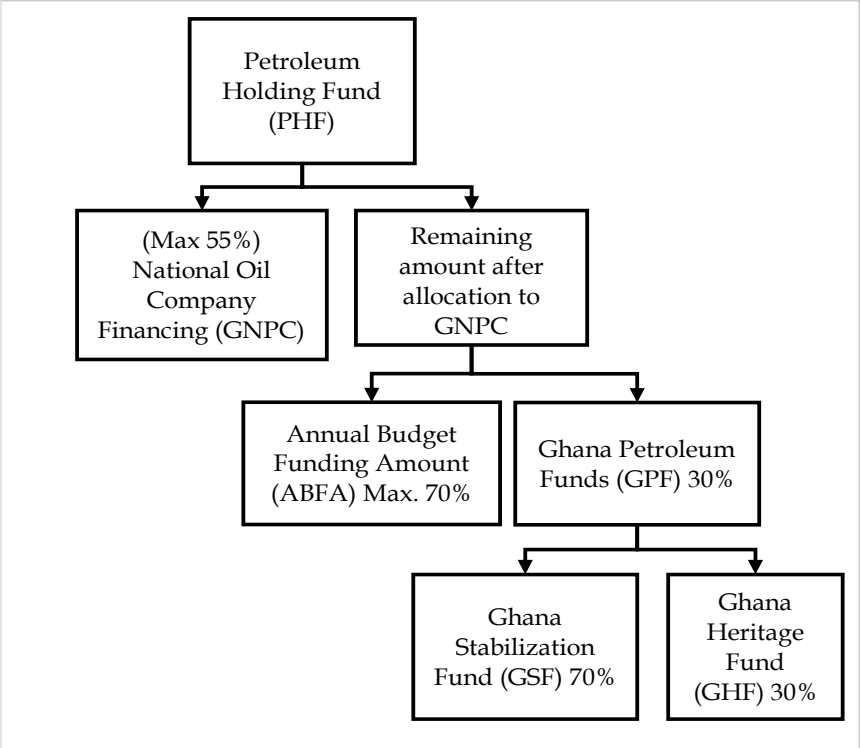
Ghana's Petroleum Revenue Management Act (PRMA), 2011 (Act 815), as amended by the Petroleum Revenue Management (Amendment) Act, 2015 (Act 893), was a case that employed most of the objectives outlined to ensure sound revenue management and allocation indicated by EITI.

The PRMA has established the Ghana Petroleum Holding Fund (GPHF), which is to receive and disburse all petroleum revenue due to the republic as follows:

- A maximum of fifty-five per cent of the petroleum revenue goes to the Ghana National Petroleum Company (GNPC) for its functioning for carried and participating interests and to provide equity finance in the petroleum industry in the country.
- A maximum of seventy per cent of the remaining revenue from the GPHF is allocated for the Annual Budget Funding Amount (ABFA), which represents the petroleum revenue allocated for spending in every financial year. Not less than seventy per cent of this allocation is to go into public investment into capital works, while the rest is for recurrent spending and funding of the activities of the Public Interest and Accountability Committee (PIAC), which has been set up to ensure accountability and transparency of the petroleum revenue.
- The other thirty per cent is deposited into the Ghana Petroleum Fund (GPF), which comprises the Ghana Stabilisation Fund (GSF) and the Ghana Heritage Fund (GHF).
- The GSF is the fund established to cushion the impact on or sustain public expenditure capacity during unanticipated petroleum revenue shortfalls. It receives seventy per cent of the thirty per cent allocated to the GPF.
- *The GHF, an endowment fund created to support the development of future generations when petroleum reserves have been depleted, receives thirty per cent of the thirty per cent allocated to the GPF.

The allocation of petroleum revenue in Ghana is simplified in Figure 13, while Figure 14 depicts the amounts of petroleum revenues distributed to the respective avenues from 2018 to 2020.

Figure 13: Spending allocations of Ghana's oil revenue under the PRMA



Source: Petroleum Revenue Management Act (PRMA), 2011 (Act 815) as amended by the Petroleum Revenue Management (Amendment) Act, 2015, Ghana

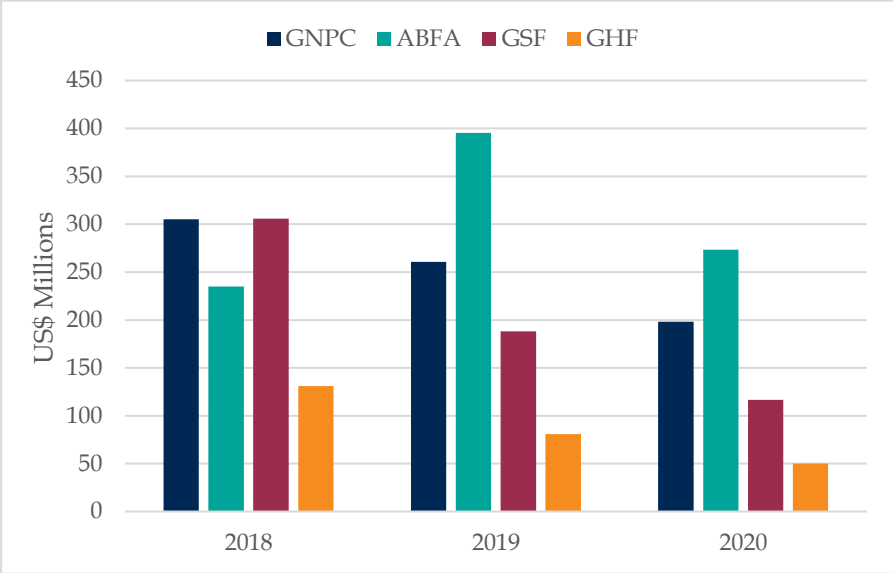


Figure 14: Amounts of petroleum revenues distributed to the respective avenues from 2018 to 2020

Source: Report of the Auditor General on the management of petroleum funds for the financial year ended, 31/12/2020

Figure 14 shows that Ghana's national budget through the ABFA received the greatest share of petroleum receipts, followed by the GNPC, the GSF and the GHF. SAI Ghana, Ghana Audit Service's audit

report on the Management of Petroleum Funds for the Period 1 January to 31 December 2022 [63] revealed that there were outstanding and late payments of surface rentals as well as non-compliance with the requirement of the Petroleum Revenue Management Act and LI 2381 regarding the payment of surface rentals, which resulted in a loss of revenue to the Government of Ghana.

The essence of ensuring prudent management and allocation of minerals and petroleum revenue by countries is to promote smooth spending flows, long-term fiscal sustainability, and intergenerational equity to mitigate Dutch disease.

Box 5 - Case example: The Dutch disease is a reminder that revenue collected from petroleum resources is both a blessing and a curse if not handled correctly. The Netherlands discovered large gas fields in 1959, and after extracting the resources, large quantities of foreign currency were flowing in, with the result that the Netherlands had a much stronger currency than other nations. The Dutch government also increased its spending, which increased inflationary pressure on the domestic economy. The manufacturing industry suffered greatly from this by being less competitive.

Policies should be set to ensure long-term fiscal sustainability and prevent the so-called 'Dutch disease'. Annual budgeting should be based on accurate estimates of petroleum and mineral prices and assumptions of volumes.

3.6.3. High-level audit considerations

The reports of the SAI in this area could alert the government to the need to encourage sustainable planning and budgeting. The EITI value chain contains some questions which the SAI can use to address the important areas:

- Are there measures in place that are being implemented to ensure resource funds are judiciously allocated and manged in the country's budget?
- Are the decisions on revenue allocation transparent?
- Are expenditure decisions nested within a sound macro-fiscal framework and aligned with the country's development strategy?
- Are there policy measures to address the risk of Dutch disease?
- Is there a credible mechanism to deal with excess revenue sustainably, such as setting it aside in a transparent savings and stabilisation fund?

[63] Microsoft Word - Petroleum Management Fund Report 2022 - Auditor General

The Santiago Principles[64] represent another internationally accepted standard for establishing and managing sovereign wealth funds. There are twenty-four principles, e.g., legal framework, governance framework and audit (relevant for SAIs).

In many cases, a separate mineral or PRMA is developed. The act would establish an account for revenue from EI, outline rules for how the revenue should be transferred to the consolidated fund, how funds should be set aside into reserve funds and how transfers to communities in the producing areas should be designed. To ensure that the rules and regulations for managing revenue from EI are being adhered to, the auditor should assess whether:

- Revenue from EI is being paid on time into the designated account in the central bank.
- There is a management agreement between the Ministry of Finance and the central bank, which also covers investment policies.
- The cap set to be allocated to the various avenues the governing legislation defines is adhered to.
- The cap set on the amount of revenue from EI to be transferred to the annual budget is adhered to. Normally, the revenue transfer should not exceed what is needed to fund the following year's national budget.
- Amounts transferred to the annual budget fund activities and projects the governing legislation defines.
- Projects to be funded from allocations to the annual budget are executed at both local and national levels.
- Transfers from the central bank are processed only with the appropriate signatures.
- Any reserve funds established are managed properly and spent for the intended purpose. Withdrawals should only be made for the intended purpose.
- Transfers are made to the local communities defined in the legislation as eligible recipients.

3.7. Implementation of sustainable policies: economic, environmental and social concerns

3.7.1. Introduction

The extraction of natural resources has Global, Regional, and Local consequences/impacts, which can also be categorised into environmental, social and/or economic. These impacts can potentially disrupt

[64] https://www.ifswf.org/santiago-principles-landing/santiago-principles

development processes and activities to provide relief to future generations for the extraction and use of these natural (finite) resources. Therefore, governments must plan and implement policies that reduce the negative impacts of EI activities on the environment and local communities towards ensuring sustainable development and economic growth. EI has a huge potential for development given that that sector drives other vital sectors of any economy, such as services, education and health. This potential can be achieved with deliberate action to ensure sustainability in the extractive industry.

3.7.2. The role of government

To attain sustainable development, especially concerning the extractive industry, governments are expected to invest in and deliver basic services, ensure human rights are protected, put in place fiscal regimes, manage revenues transparently and invest these revenues. Governments are also expected to develop legislation, regulations and policies related to sustainable issues, including social services, public health, education, public infrastructure, economic policies and setting environmental performance standards and align such legislation and policies with national development plans and international initiatives, and put in place institutions and agencies capable of managing the EI. The existence of these regulations alone does not guarantee the success of the extractive industry but enforcement of same, and governments again are responsible for enforcement of such regulations.

Sustainability cuts across all phases of the EI value chain, thus the need for policies in that direction. Governments in developing policy around the EI value chain consider these vital areas because the government's success in these areas translates into the success of the entire EI sector. These sectors include the legal and regulatory framework around which the sector would operate, contracts and agreements towards exploration, extractions, development, etc. There is also a need to consider procurement, especially in awarding contracts, underlining issues, and monitoring operations while development is ongoing. The issue of revenue management (collection and utilisation) is also worth considering in the development of policy, especially considering the sector's sustainability. Table 10 shows some areas relevant to sustainability policy development and/or implementation along the EI value chain.

Table 10: EI value chain and sustainable policies

EI value Chain Step	Relevant to sustainable policies
Policies and legal framework	Environmental, health and safety (EHS) regulations, social impact regulations/agreements, revenue management regulations, local content policies and legislations, contracts,

	licensing agreements and conditions for tender qualifications, etc.
Government activities/decisions to explore/extract	Baseline assessments, licence compliance verification, environmental and social considerations when exploring, etc.
Award of contracts and licences	EIA/ESHIA licence and requirements, etc.
Monitoring of operations	Environmental health and safety (EHS) monitoring, (EIA/Environmental Management) monitoring, monitoring of closure/decommissioning, etc.
Assessment and collection of revenues	EIA licence fees, rehabilitation fees, monitoring fees, community development funds, decommissioning funds/financial assurance, etc.
Revenue management and allocation	Managing and allocating revenue to and from community development funds, decommissioning or sovereign wealth funds, etc.

3.7.3. Role of Supreme Audit Institutions (SAIs) and AFROSAI-E

SAIs has a duty to make a difference in the lives of citizens (INOTSAI P12) by providing objective and independent assessments on whether governments are managing public resources (natural) in a way that adequately meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This includes ensuring the protection of those natural resources, the environment, and healthy ecosystems, resulting in the well-being of all citizens.

SAIs also have a duty of partnering with governments to ensure good governance and accountability in all governance sectors, including the extractive industry and, more recently, in attaining the Sustainable Development Goals (SDGs) and Agenda 2063. That is, SAIs can make valuable contributions to national efforts to track progress, monitor implementation and identify improvement opportunities across the SDGs and the Agenda 2063 aspirations through their audits and consistent with their mandates and priorities. The EI have an unprecedented opportunity to mobilise significant human, physical, technological, and financial resources to advance the SDGs. The EI sector can create jobs, spur innovation, and develop investment and infrastructure with careful planning and implementation. If managed poorly, the industry can lead to environmental degradation, displaced populations, and increased conflict, among other challenges.

AFROSAI-E has endeavoured to map the SDGs and Agenda 2063, ref. Annexure 3, to the extractive industry with the following objectives:

- Facilitating a shared understanding of how EI most effectively supports the achievement of the SDGs and the 2063 Agenda.
- Enabling SAI auditors, key EI actors and their partners to identify how the industry can support countries in achieving the SDGs and 2063 Agenda.
- Encouraging SAIs to further incorporate relevant SDGs and the 2063 Agenda into their audits of EI and operations, validate their current efforts and spark new ideas in auditing.

Achieving the SDGs by 2030 will require all sectors and stakeholders to incorporate them into their practices and operations, requiring unprecedented cooperation and collaboration among governments, non-governmental organisations, development partners, the private sector, and communities.

3.7.4. Managing environmental and social issues

All extracting activity should be preceded by an EIA or Environmental Social Health Impact Assessment (ESHIA), an assessment of the possible positive and/or negative impact that a proposed project may have, considering the environmental, social, and economic aspects. The international standards on environmental management, the ISO 14000 series, prescribe how such assessments shall be carried out. Ideally, the EIA should cover the following phases of the extraction process:

1. Reconnaissance activities (seismic and geological surveys).
2. Exploration drilling.
3. Development and production.
4. Decommissioning and /or closure.

While undertaking the EIA, the licensee/contractor should also conduct a comprehensive environmental baseline study. This will assist in comparing the post-extraction activities phase with the initial situation. The EIA will lead to the development of an environmental management plan. This plan will be prepared by the licensee/contractor and will lay out the environmental requirements for the extraction activities. The plan should be reviewed and approved by the government. It is also considered best practice to disclose the environmental plan to the affected communities. If changes are made to the environmental plan, they should be communicated to the communities to ensure that their views are considered. The risk is that EIAs are carried out only at the initial phase of exploration and not applied throughout the process, ending with the project's abandonment. There is also a risk that assessments and plans are not updated when changes occur. Furthermore, there is a risk that fees paid by licence holders for the regulator’s monitoring are not used for the intended purposes.

3.7.5. Extractive Industries' environmental and social impact

Petroleum and mining activities can have many effects on society and the environment. To assist SAIs in understanding the challenges and risks, some environmental[65] and social issues have been identified and described below.[66]

Table 11: Environmental and social impact issues

Environmental Impact Issues	Social Impact Issues
Biodiversity EI can substantially impact biodiversity, resulting in the destruction/ disruption of habitats, ecosystem degradation and loss, destruction of key flora and fauna, deforestation, oil spills or releases of toxic compounds. EI can cause enormous damage to the environment.	**Human rights** Human rights issues in the mining industry include security, corruption, discrimination, child labour, labour conditions, environmental damage, land acquisition and resettlement, loss of culture and local community economic development, and specific issues for indigenous peoples.[67][68]
Disaster management and emergency preparedness EI-related disasters can be catastrophic, endangering human lives and communities and affecting the natural environment. Disaster management risk assessments must be conducted, and preventative management plans must be developed to reduce the damage caused by a disaster.	**Fatalities, Safety and Occupational Health of miners and communities** EI exposes employees to dangerous working conditions, e.g., risks of underground mines collapsing, explosions, floods, fires, etc. Occupational health hazards include, e.g., exposure to extremely high temperatures and loud machinery, inhalation of dust and contact with chemicals.
Decommissioning, rehabilitation, and mine closure. *See below.*	**Local content, local employment, and investment.** *See below.*
Water usage and water pollution EI depends on water. Wastewater, offshore drilling, and mine waste can pollute water sources and affect plants, marine and other wildlife.	**Gender equality** EI activities can have negative social impacts, such as crime, alcoholism, domestic violence, prostitution, trafficking, sexual exploitation and sexually transmitted diseases.
Air emissions EI is energy intensive and requires extensive transport, producing gaseous emissions. Oil and gas operations also lead to the burning and releasing gases, 'flaring'. Dust, particles, and gaseous emissions in the air can lead to severe human health impacts,	**Cultural heritage** EI activities can potentially affect the culture and traditions of local communities, particularly indigenous communities, by disrupting traditional practices or damaging areas of archaeological, historical, artistic, or religious significance.

[65] For more information on environmental issues in mining, see INTOSAI WGEA 2010, Auditing Mining: Guidance for Supreme Audit Institutions.
[66] Risks and effects will differ based on the EI operations as well as country context.
[67] International Finance Corporation; Sustainable and responsible mining in Africa – a getting started Guide
[68] For more information on human rights risks, see BGR 2016, Human Rights Risks in Mining - A Baseline Study.

Environmental Impact Issues	Social Impact Issues
respiratory diseases, environmental degradation, CO_2 emissions, and climate change.	
Pollution and waste management If not managed effectively, pollution from waste can significantly impact the natural environment and the communities through contaminated water and crops, reduced soil quality, and other human health and environmental impacts.	**Displacement and resettlement of communities** One of the significant social impacts of onshore mining and oil activities is the displacement or forcing of thousands of people to abandon their current homes, which worsens social marginalisation, unemployment, homelessness, and health problems.
Land usage and acquisition Environmental disruptions include permanent loss of natural resources and pre-emption of alternative land uses (for agriculture, forestry, hunting or leisure).	**Other social issues worth noting** • Food security and deterioration of livelihoods • Increased cost of living and economic disparity • Changes in population dynamics Improper land acquisition can result in continuous conflicts between licensees and landowners.

Community development

EI's effect on people's livelihood is substantial. The challenge at the community level is to maximise the benefits and to avoid or mitigate any adverse impacts of EI activities. Priorities and, ultimately, choices regarding trade-offs relating to different social, environmental, and economic goals need to be determined through participatory processes before, during and after EI operations, involving all relevant actors, including members of the affected community, and in accord with the local context.

Community development is increasing the strength and resilience of communities, improving people's quality of life, and enabling people to participate in decision-making fully. There is increasing emphasis on the importance of meaningful engagement and involvement with local communities, which enables companies to better understand and communicate more effectively with local communities, enhancing respect and reducing conflict. To gain the trust of local communities in regions worldwide, companies are building local schools, hospitals, and infrastructure and supporting communities through local procurement and employment. Some best practices include educating local communities on health-related issues so they can reduce the incidence of preventable illness and disease; providing communities with financial training to build viable businesses; leveraging existing infrastructure to create new economic activity and reskilling local workers in alternative industries, such as agricultural production, which can help them thrive once local EI projects shut down.[69]

[69] Deloitte, *Tracking the Trends 2019.*

Community development initiatives have previously been associated with companies' corporate social responsibility programmes. However, community development is becoming a requirement in more countries. In West Africa, Community Development Agreements – a compact between government, mining companies and communities – are mandatory for getting mining licences. Community Development Agreements are regulated by law. The agreements also include provisions on the collection of development funds, monitoring compliance with agreements, implementation of activities, evaluation, etc. Regulated or not, recent industry initiatives involve contributing to 'host countries' and communities' social, economic, and institutional development. In practice, the companies are expected to go beyond mitigating social impacts and work towards creating lasting benefits that sustain people beyond the life of a project.[70]

Decommissioning, rehabilitation, and mine closure

EI leave environmental and social damage in the communities where decommissioning, rehabilitation and mine closure are not effectively managed. The effects depend on the type and size of the extractive activity, the location and surrounding areas, and the technology used. The larger the oil field or mine, the greater the impact, and these are more complex when the activities occur near ecologically or socially sensible areas. Rehabilitation is about restoring the land or area impacted by EI to a sustainable, healthy, and usable condition.

Lack of proper decommissioning and mine closure is a key risk in EI, and the process is a relevant source of negative environmental impact if not properly managed. Decommissioning, rehabilitation, and closure are technical and complex; insufficient funding is the largest barrier. The EI companies may have an interest in postponing the decommissioning phase. EI companies should ensure adequate plans and finances are in place for rehabilitation and restoration of the environment throughout the project's lifecycle, including progressive (ongoing) rehabilitation, rehabilitation in the closure phase, and rehabilitation of latent or residual impacts that may arise long after operations have ended.

Global regulations and standards for decommissioning, rehabilitation, and closure are lacking. It is the government's responsibility to ensure that petroleum or mining sites are not abandoned. Environmental laws should ensure that communities are protected and that companies are held accountable for environmental damage caused by extraction. Legal requirements for decommissioning and mine closure are to be found in the Petroleum or Mineral Act or the Environment Act and regulations. The requirement will normally be for the licensee/contractor to submit a decommissioning plan or closure plan to the ministry before obtaining an EIA licence or within a specific amount of time before a licence

[70] See for instance ICMM Community Development Toolkit.

expires or activities are expected to end. The plan must also contain information on costs and finances, management systems, cessation alternatives, environmental and sustainability impact assessments, and a land restoration and waste management proposal. The licensee/contractor shall establish a *decommissioning fund* large enough to cover the total costs or provide other *financial assurance*. The licensee/contractor is responsible for *restoring* the affected area and removing the causes of damage or danger to the environment and the neighbouring communities. Governments must also ensure that local agencies with skilled people are responsible for ensuring closure as it should be. However, governments in many countries cannot implement closure plans.

The best practice is developed through international and regional initiatives aimed at governments and companies. Recent best practices for governments and industry[71] indicate that good policy should include adequate financial assurance, update mechanisms (regular closure plan and financial assurance updates and approvals), transparency, and community and stakeholder engagement and participation. Within mining, the Asia-Pacific Economic Cooperation has developed a Mine Closure Checklist for governments, and The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) has developed a Mining Policy Framework. These can guide governments in developing and implementing a successful mine closure governance framework and guide SAIs auditing government efforts to ensure proper mine closure.[72]

Local content, local employment, and investment

The intention with local content requirements is to ensure that host country citizens benefit from resource extraction in their country. It also ensures that local firms get supply contracts, thus ensuring sustainable growth and development. Many contracts and licences for oil, gas or minerals extraction have local content provisions. Local content is not relevant only for developing countries or EI; local content policies are being drafted worldwide and across sectors. Some countries have developed general or sector-specific local content policies, and some have local content laws. Uganda is one such example. Their goal in policy from 2019 is to impose local content regulations on everyone using public resources or carrying out activities that require a licence in Uganda.[73] The regulations should include employment, procurement, training and technology transfer requirements, monitoring and enforcement mechanisms and government obligations supporting the company programme.

[71] Recent examples of this are ICMM (2019) Integrated Mine Closure - Good Practice Guide and the ICMM (2019) Financial Concepts for Mine Closure.
[72] See for instance APEC (2018) Mine Closure Checklist for Governments and IGF (2013) Mining Policy Framework - Mining and Sustainable Development.
[73] Microsoft PowerPoint - Uganda oil 2016 (columbia.edu)

The provisions should aim to maximise the economic opportunities of resource extraction for the host country and ensure that the benefits of resource extraction remain in the host country. Local content policies that are gender sensitive and do not create inequalities can also help to reduce discrimination and promote opportunities for women's participation in EI, thus reducing the risk of gender inequality in EI.

Box 6 - EI audit example: SAI Kenya's Performance Audit on Monitoring Mining Operations by THE State Department of Mining. P.A.-MINING-NOV.-22-compressed.pdf (oagkenya.go.ke)
The audit revealed that the State Department of Mining (SDoM) has not ensured the transfer of mining skills to Kenyan Citizens. Consequently, mining companies rely on expatriates at the expense of many Kenyan Citizens who would otherwise be employed. In addition, SDoM had not ensured that mining companies collaborated with training institutions to address the skills gap in the country.

Local content requirements frequently used include ownership (often joint ventures with local firms), maximisation of local procurement (preferences given to sourcing from local companies), local transformation of beneficiation of raw materials, local employment at different stages of the value chain and with different levels of competencies (often involving requirements to support training) and local technology or research development.

3.7.6. High-level audit considerations

To ensure that the government performs its duties, the SAIs should consider:

Environmental and society

- Government commitments to meeting agreements made in treaties, laws, policies, and programmes such as:
    a. The existence of local policies, plans and legislation aligned to the treaties and national development plans to govern the EI sector.
    b. Mainstreaming of major development goals (SDGs and Agenda 2063) into EI legislation, plans and policies.
    c. Mechanisms to monitor, follow-up, review and report on the progress in implementing the 2030 Agendas.
    d. Resources and capacities (means of implementation) are needed to implement the 2030 Agenda.
- Government efforts to ensure that EI companies comply with environmental and social laws and regulations include:

a. The process of assessing and approving Environmental Impact Assessments, Environmental Management Plans and Environmental Social Impact Assessments.
b. Ensuring that regulatory agencies enforce the submission of Environmental Impact Assessments, Environmental Management Plans and Social Impact Assessments by EI companies.
c. The technical capacity of regulators to regularly monitor, report and follow-up on environmental and social issues.
d. The effectiveness and adequacy of the system for regular monitoring, reporting and follow-up on environmental and social issues.
e. Adequate supervision of EI activities.
f. Efficient and effective management of funds (if any) for environmental and social monitoring.

- Government preparedness

Decommissioning, rehabilitation, and closure

- Government efforts must ensure compliance in areas such as:
    - The technical capacity of government agencies processing and reviewing closure plans.
    - The processes followed by the regulator must ensure timely and cost-effective identification and rehabilitation of EI facilities to minimise adverse social and environmental impacts.
    - Assurance that the regulator implements strategies that ensure that companies provide guarantees in the form of bonds or cash as security to provide for the likelihood of failure of companies to rehabilitate or properly rehabilitate drilled or mined areas.
    - The adequacy of associated cost estimates and the management of financial assurance.
    - Assurance of adequacy of rehabilitation works by the EI company/player.
    - Availability of bonds and guarantees against failure to rehabilitate destroyed environment/communities/livelihoods.
- The government should determine the period in which decommissioning begins. It should begin as early as is reasonably acceptable.
- The regulatory framework's completeness in assigning roles and responsibilities in decommissioning and closure must be assured, including liability in the event of non-compliance by contract/licence holders.

Community development

- There should be availability of community development schemes/agreements/plans' and funds to ensure that EI activities benefit local communities.
- Such plans should be aligned to specific SDGs, targets, indicators, and regional and national plans and policies.
- The availability of monitoring indicators for the schemes must be assured.

Local content

- The legal framework in their country must provide for local content requirements and establish comprehensiveness through benchmarking with countries with a robust local content framework.

The effectiveness of the legal framework through auditing, whether or to what extent the relevant government ministries, departments or agencies are monitoring the implementation of local content requirements.

4. Other risk areas and relevant audit considerations in EI

4.1. State-owned enterprises (SOEs)

SOEs play important roles in exploiting natural resources and managing the extractive sector. While some are commercial or operational companies selling crude oil or raw minerals, managing state equity, or participating directly in extractive operations, others are regulatory or administrative entities or economic or state development instruments.

Many SOEs perform a mix of commercial and non-commercial duties. SOEs can generate significant revenue for the state, enable a government to exercise greater control over the sector, help improve local technologies and skills, manage exposure to energy transition risks, or address market failures by providing services that the private sector would not otherwise provide. Many countries also use state equity to secure additional government take (beyond tax revenue) from extractive projects.

Governance of state participation and SOEs has considerable implications for public finances and the economy in general. Although some SOEs have contributed significantly to the development and revenue generation, others have struggled with poor governance and corruption. Early results from EITI reporting and validation have shown that although financial transactions related to state-owned companies have become more transparent, there is still a demand to improve transparency standards around SOE governance. EITI reporting and validation showed that although financial transactions related to state-owned companies have become more transparent, there is still a demand for improved transparency standards around SOE governance.

EITI standards require countries to explain the role of SOEs in the oil, gas, and mining sectors and the rules that govern the financial relationship between the government and SOEs. This should include the government's ownership level in SOEs, subsidiaries and joint ventures. EITI Requirements 2.6, 4.5 and 6.2 cover disclosures related to SOEs. The EITI International Secretariat recommends a step-by-step approach to Muti-Stakeholder Groups for reporting on state participation in the extractive industries. Auditors can use the steps to gather information on SOE's participation in EI. This is shown in Annexure 5.

SOEs play a central role in the success or failure of national development. They can be economic growth engines but become mired in corruption and ineffectiveness. The 2021 RGI assessed the governance of twenty-one oil, gas, and mining SOEs. The report stated that many SOEs lack essential corporate transparency and financial accountability. To discourage corruption, SOEs should adopt essential

elements of corporate transparency and financial accountability, such as the publication of annual reports and the conduct of regular financial audits.

SOEs should strengthen integrity measures. The record is similarly mixed concerning other important integrity measures. Fifteen of the 21 SOEs assessed in the 2021 RGI did not publish codes of conduct, thus making it difficult for citizens to know whether the companies had developed adequate anti-corruption standards and procedures.

Corruption risks are also high in commodity trading, especially when SOEs sell oil to commodity traders. Recent bribery cases have implicated several international traders and SOE officials from countries assessed in the 2021 RGI. Clear rules regarding commodity sales can guard against risk-prone discretionary decision-making. Commodity sales transparency may also help prevent corruption and inform the efforts of anti-corruption actors, such as law enforcement and the media.

Transparency, oversight, and established rules and processes can all help to prevent corruption, including in the high-risk areas of beneficial ownership, SOE expenditures and commodity trading. They signal sector participants about the importance of integrity and reduce the scope for political or private agendas to distort decision-making and facilitate oversight.

SOEs should implement basic corporate transparency and financial accountability measures, such as annual reports, regular financial audits and reporting on commodity sales, and integrity measures, such as publishing codes of conduct and increasing levels of governing board independence.

Disclosures of transactions within SOE groups are also vital to understanding the financial relations between SOEs and their subsidiaries, joint ventures, and affiliates, including dividends and payments collected, terms related to ownership changes and the sales of SOE assets.

High-level audit considerations and questions

- What revenues can the state expect from direct and indirect participation in the extractive sector?
- How much is the state or SOE spending to meet the terms of its participation in the industry; what are they entitled to receive, and how much is it receiving in revenues?
- What are the SOE auditing rules, and how are they complied with?
- Does the state or do the SOEs manage revenues from their participation in the industry transparently and soundly?
- Is the SOE a credible partner for a foreign company to enter into a business partnership with?

- Is the ownership structure transparent, and is it possible to obtain information about the actual beneficial owners of the SOEs?
- Has the SOE established good corporate Governance?

4.2. Illicit financial flows (IFFs)

IFFs comprise 'money illegally earned, transferred or used' (OECD, 2018). The *United Nations Development Programme (UNDP) defined* IFFs as follows: 'IFFS include, but are not limited to, cross-border transfers of the proceeds of tax evasion, corruption, trade in contraband goods, and criminal activities such as drug trafficking and counterfeiting.' The international illegal or illicit movement of money generated in developing countries has become a significant issue in the development agenda. Reducing IFFs is a component of Goal 16[74] of the 2030 SDGs and a staple of declarations from the G7 and G20.

Although the numbers on IFFs are inherently vague and definitions vary, current estimates of illicit capital flight from the African continent amount to some USD 88.6 billion per year during 2013-15, or the equivalent of 3.7 per cent of Africa's total gross domestic product (GDP). Almost half of that, or at least USD 40 billion, was due to IFFs related to the export of extractive commodities (UNCTAD). This is significantly more than the value of official development assistance receipts, USD 37 billion, or foreign direct investment, at USD 45 billion.[75]

IFFs have five major sources (bribes, tax evasion, criminal enterprise earnings, corporate profit shifting and currency regulation evasion) and many channels for moving the money (e.g., bulk cash smuggling, shell corporations, informal value transfer systems and trade-based money laundering). Tackling IFFs has gained prominence in recent years due to the 2008-09 global financial crisis, the revelations of the Paradise and Panama Papers in 2016-17 and the all too frequent high-profile scandals involving some of the world's largest corporations.

4.2.1. Why IFF is an important matter

Most illicit activities represent a net loss for the region. Countries and companies lose revenue, investment, markets, and legitimacy, and citizens are disenfranchised, exposed to violence and health risks, and deprived of financial gains.

[74] Goal 16.4 "By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime".
[75] Porter, D. and C. Anderson (2021), Illicit financial flows in oil and gas commodity trade: Experience, lessons and proposals, OECD Publishing, Paris.

- Illicit activities and flows feed a vicious cycle of corruption, allowing groups or individuals in power to access resources that can be used to boost electoral campaigns, secure patronage, and retain control.
- There are spill-over effects from illicit and criminal activities, such as increased instability, violence, or terrorism.
- The distinction between licit and illicit is often blurred. With few viable legitimate livelihood opportunities within the formal economy, these other forms of trade and industry – albeit illicit – are subsistence-level activities.

At the same time, these issues have been addressed as security problems. Yet, for AFROSAI-E member countries, as elsewhere, they are primarily a development concern. The perspective of the most vulnerable – the ordinary African citizen – is also a critical area of focus in elaborating the role of SAIs in this area.

4.2.2. Illicit financial flows enablers

As per the High-Level Panel on Illicit Flows from Africa Report of 2013,[76] IFFs are driven by several 'push' and 'pull' factors. The most obvious push factor driving IFFs is the desire to hide illicit wealth. The report cites four key drivers of IFFs as given below:

- Poor governance enables IFFs to have low capacity and/or competence in assessing, auditing and collecting revenues open for transfer mispricing and tax evasion. A poor business environment may encourage IFFs when people find making money through illicit activities easier than legitimate business. Weak regulatory structures may also be an important factor in post-conflict countries.
- Double taxation agreements (DTAs) can also enable IFFs. DTAs have a positive role in several respects since double taxation can stifle economic activity and deter direct foreign investment. Agreements between countries to avoid such consequences have a place in necessary policy interventions. However, the benefit of such agreements depends on their provisions.
- Tax incentives[77] are another set of instruments with positive intentions that sometimes enable IFFs. Ordinarily, tax incentives are granted to encourage inward investment or the expansion of economic activity in general or specific sectors. However, tax incentives are a major risk area for corruption, and they can have a pernicious effect when abused.

[76] Report of the High-Level Panel on Illicit Financial Flows from Africa commissioned by the AU/ECA Conference of Ministers of Finance, Planning and Economic Development

[77] https://www.taxjustice.net/2019/01/03/ineffective-tax-incentives-on-profits-heavily-used-by-african-nations-compared-to-european-nations-study-finds/

- A significant enabler or pull factor for IFFs from Africa is the existence of financial secrecy jurisdictions and/or tax havens.

Irrespective of how illicit financial transfers occur, the actors' ultimate objective is to hide the proceeds from the public eye and law enforcement agencies.

4.2.3. Key illicit financial flows in the extractive industries in Africa

In resource-rich sub-Saharan Africa (SSA), oil and mining, on average, account for twenty-eight per cent of GDP and more than three-quarters of export earnings (OECD).

- Current estimates suggest that some EUR 40 billion in IFFs from the African continent each year are linked to the extractives industries, with the overwhelming share of these flows attributed to oil.

Oil trade activities constitute the most significant source of domestic resource mobilisation for oil producing developing countries. Yet, corruption and IFFs also expose them to macro-critical risks of economic instability, exacerbating their often-high vulnerability to chronic poverty, fragility, and episodic conflict. In the EI sector, these flows mostly originate from corruption, illegal resource exploitation and tax evasion (including smuggling and transfer mispricing).

- Indications are that the vulnerability of Sub-Saharan African oil and gas producers to IFFs is increasing and that the COVID-19 pandemic is exacerbating it (OECD, 2020). In the current crisis brought about by COVID-19 and the drastic fall in global oil prices, capital outflows from selected developing and emerging oil trading and development economies (including Angola, Ghana, Kenya, Nigeria, South Africa and Zambia) reached a record-high of USD 100 billion between February and early June 2020 (G20 High-Level Ministerial Conference, 2020) Although all are not illicit, there is a risk of IFFs increases due to the expedited administrative measures adopted to deal with the economic and social crisis and to already overstretched administrative, oversight and audit functions.

Abusive transfer pricing (Transfer Mispricing)

TP happens whenever two companies in the same multinational group trade with each other. TP is not illegal or necessarily abusive. What is illegal or abusive is transfer mispricing, also known as TP manipulation or abusive TP. (Transfer mispricing is a more general phenomenon known as trade mispricing, which includes trade between unrelated or unrelated parties – an example is reinvoicing). It is estimated that in EI, around 70 per cent of international trade happens within, rather than between, multinationals: that is, across national boundaries but within the same corporate group.

Estimates vary regarding how much tax revenue governments lose due to transfer mispricing. See the example per **Tanzania case studies** by Hon. Zitto Kabwe, MP. African tax administrations (ATAF) report that TP represents one of the highest risks to their tax bases. Effective TP legislation is a critical element of African countries' fight to combat abusive TP practices and is also important in providing taxpayers with greater tax certainty and encouraging voluntary compliance.

Tax evasion

Tax evasion is the illegal evasion of taxes by individuals, corporations, and trusts. Tax evasion often entails taxpayers deliberately misrepresenting the true state of their affairs to the revenue authorities to reduce their tax liability. It includes dishonest tax reporting, such as declaring less income, profits, or gains than the amounts earned or overstating deductions.

Tax avoidance in EI generally occurs in the grey area between legality and illegality – such as when multinational entities shift profit to companies in tax havens. Conversely, tax evasion/fraud involves the overt breaking of laws. The organisation Global Financial Integrity organisation estimates that Mauritania loses twelve per cent of its GDP to such activity, Chad twenty per cent, and the Republic of Congo twenty-five per cent. IFFs damage African states and hold back their industrialisation and development.

Tax evasion is criminal, but tax planning and tax avoidance are normally defined as legal activities. Therefore, multinational companies and their assistants tend to describe their activities as legal tax planning until a relevant authority stops them through a thorough tax audit that concludes by identifying the particular tax scheme as tax evasion (see Figure 15 below).

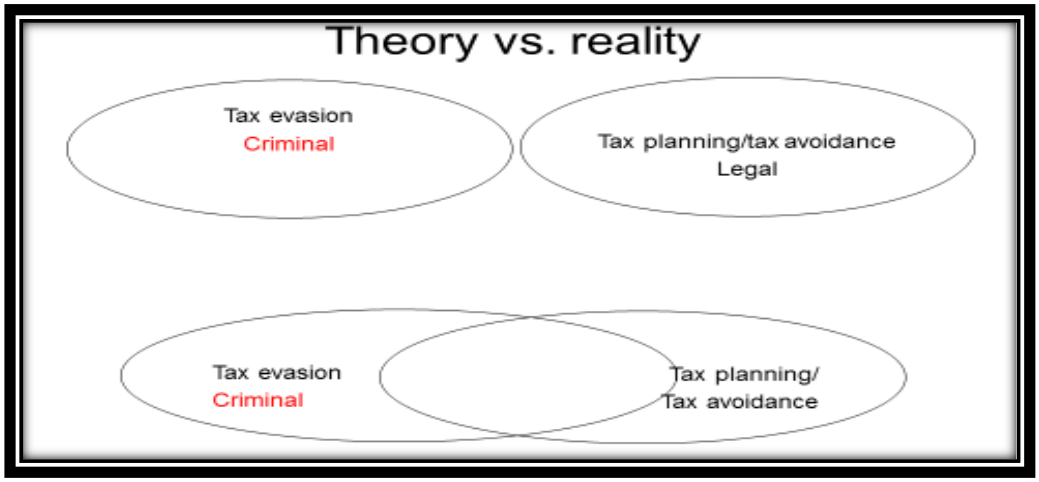


Figure 15: Theory vs reality

Money laundering

Money laundering is concealing the transformation of profits from illegal activities and corruption into ostensibly 'legitimate' assets. Money laundering is rife in Africa. Because of the huge cash-based and often informal economies, criminals can move dirty money across borders, concealing its source and making it clean. As many African countries are rich in either oil or precious stones, these commodities are frequently used to move funds around the continent.

Money laundering involves three steps:

1. The first involves introducing cash into the financial system by some means ('placement').
2. The second involves carrying out complex financial transactions to camouflage the illegal source of the cash ('layering') and
3. Finally, wealth is generated from illicit funds' transactions ('integration').

Some of these steps may be omitted, depending on the circumstances. For example, non-cash proceeds already in the financial system would not need to be placed.

Illegal transactions or financial discrepancies can take place anywhere in the world. There is, however, a lower risk of detection in African countries because the compliance programmes are often not as robust as they should be and, in some cases, are simply ineffective. Several initiatives have been adopted to minimise money laundering worldwide and in Africa. The Eastern and Southern Africa Anti-Money Laundering Group (ESAAMLG[78]) aims to combat money laundering in Eastern and Southern Africa by studying emerging money laundering typologies, developing capacities, and coordinating technical assistance.

Beneficial ownership

Hidden beneficial owners of natural resource-related companies have been linked to significant tax evasion, corruption, and international financial fraud.

Corruption risks are mainly linked to politically exposed persons (PEPs) or high-level public officials or politicians (or their family members) who have acquired a stake in a natural resource company or an investment project. A review of 100 real-world cases of licence or contract awards in the oil, gas, and mining sectors in which accusations of corruption arose found that over half involved a PEP as a hidden beneficial owner (Sayne, Gillies, Watkins 2017), even in countries where companies must report,

[78] Members of ESAAMLG are Angola, Botswana, Comoros, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Seychelles, Tanzania, Uganda, Zambia and Zimbabwe.

update, and publish beneficial ownership information, beneficial ownership disclosure can be evaded by creating shell companies in countries without disclosure requirements.

- *Pandora papers under the beneficial ownership*

Governments should establish public registries of verified beneficial ownership information on all legal entities, and all banks should know the true beneficial owner(s) of any account in their financial institution.

4.2.4. Existing efforts to combat illicit financial flows

IFFs have both a source and a destination country, often involving transit countries.[79] Transit countries are primarily wealthy since they offer secure facilities, a wide range of investment opportunities and political stability. Destination countries may often be a tax haven where the beneficial owner controls the shifted profits. A tax haven may provide the beneficial owner with desired secrecy, low tax, or both. The flows can best be stemmed by internationally coordinated actions involving both source, transit, and destination countries, as reflected in the resolutions of the G20 on the issue of IFFs. Five main interventions are explicitly aimed at reducing IFFs:[80]

1. Anti-money laundering (AML) laws and programmes. These are attempts to (a) prevent offenders from turning illegally generated money into legal funds that can be used for any investment or consumption purpose and (b) to use the effort to launder money to apprehend and punish offenders, including those professionals who help the primary offenders move, conceal, or transform the proceeds of crime. Almost all nations have laws and institutions that have received some degree of approval from the Financial Action Task Force (FATF), a G7-created entity that sets the rules for such matters.
2. Stolen assets and recovery procedures. A range of laws and programmes aim to facilitate the return of assets stolen from national coffers by corrupt officials.
3. Automatic exchange of information between countries. Under these international treaties/agreements, each country's banks are legally required to provide revenue authorities with information about all accounts. Then, each country exchanges such information of accounts that that country's residents hold.[81]

[79] See Tax Justice Network *Financial Secrecy Index http://www.financialsecrecyindex.com/introduction/fsi-2015-results*
[80] 2015 Financing for Development Commitment on IFFs: to "substantially reduce and eventually eliminate IFFs"
[81] http://www.oecd.org/tax/exchange-of-tax-information/

4. The development of new rules regarding country-by-country reporting of corporate profits intended to prevent corporate profit shifting abuses; see OECD (2015).[82]
5. The development of ownership registries may hamper the secrecy of ownership of financial assets and a broad array of tangible assets. In reality, the existence and use of tax havens will often hamper governments and civil society's abilities to disclose the beneficial owner.[83] The beneficial owner is the individual who ultimately controls or profits from a company.

4.2.5. High-level audit considerations

SAIs remain at the pinnacle of good corporate governance in the public sector; hence, they have a role in addressing IFFs in EI. Government agencies should also work together and communicate with one another. The following strategies should be kept in mind when performing audits in EI:

- Acquiring information and understanding of how these outflows occur in the EI sector.
- Considering the options to access available data for evaluating realistic and accurate volumes and sources of the outflow.
- Government policy, legal framework and monitoring of IFF along the value chain.
- Auditors should identify whether EI companies have sufficient controls to prevent IFF.
- Increasing the understanding of binding international law and treaties (transparency, money laundering, beneficial ownership, and exchange of information).
- Ministry of Finance and Revenue Authority policies and actions to mitigate transfer mispricing.
- Scrutinising contracts and agreements between government and EI companies for incentives and assessing the economic impact on government revenues.
- A broad range of IFF risks arise in oil and gas trading. Among them is the potential for tax evasion and money laundering associated with misinvoicing, as well as the possibility of bribery, collusion and below-market pricing associated with the largely opaque oil-backed loans and oil-for-product swap agreements. IFF risks are mutually sustained on both sides of the trading relationship and at three key points of vulnerability:

    - **The selection of buyers and allocation of buyers' rights** - As in government contracts, allocating the rights to buy oil or gas from NOCs can attract corrupt behaviour. Problems can include bribery by buying companies to secure business, conflict of interest on the part

[82] http://www.oecd.org/tax/transfer-pricing/transfer-pricing-documentation-and-country-by-country-reporting-action-13-2015-final-report-9789264241480-en.htm
[83]https://www.transparency.org/whatwedo/publication/recommendations_on_beneficial_ownership_transparency_for_ogp_national_action

of officials in charge of allocations and the allocation of rights to companies with PEPs as their beneficial owners.

- **The negotiation of terms of sale -** As with the award of trading rights, suboptimal terms of sale could result from bribery or favouritism. The terms of an NOC oil or gas sales determine whether the selling country receives the best possible value for its natural resources.

4.3. Fraud and corruption

Two main factors are often blamed for EI's scarcity of tax revenues. First, unfavourable contracts and licence agreements tend to ensure that the larger portion of profit flows to multinational companies instead of generating revenue for the government and the citizens' benefit. Secondly, the high perceived risk of fraud, corruption and theft associated with the sector brings a focus onto international good governance and anti-corruption initiatives.

Corruption - as per the definition in the OECD, corruption involves behaviour on the part of officials in the public sector, whether politicians or civil servants, in which they improperly and unlawfully enrich themselves or those close to them by misusing the public power entrusted to them.

Fraud – Is an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving deception to obtain an unjust or illegal advantage.[84]

Fraudulent or corrupt practices may relate to:

- Unfair allocation of area or block for exploration.
- Lack of transparent, competitive, and non-discretional procedures for awarding exploration, development, and production rights. This may result in a situation where the fact that some bidder(s) may be favoured over others can go unnoticed and unpunished.
- Discretionary authority to grant tax holidays, tax incentives, and other waving/derogating exemptions or benefits that deviate from the legal framework.
- Transfer mispricing, undertaking transactions with related parties at prices other than arm's length.

Given the significant revenue generated from the EI sector, reliable financial systems and transparent contract management are essential to mitigate the risk of corruption. If these are not in place, corruption can easily take root. Weak legal, regulatory, and contractual frameworks and the lack of well-defined

[84] ISSAI 2240

institutional responsibilities may present opportunities for corruption or fraud to occur under the radar for long periods.

SAI-ACA[85] collaboration

The first "SAI-ACA" Anti-corruption seminar to explore collaboration between the SAIs and ACAs by creating awareness and joint action on how SAIs and ACAs can contribute to state anti-corruption efforts was held under the theme 'The Role of SAIs and Institutionalised Good Governance in State Anti-corruption Effort'.[86] Having explored the possibilities of cooperation between SAIs and ACAs of the respective countries in attendance and noting the increased expectation and need for SAIs and ACAs to collaborate their efforts efficiently and effectively with due respect to their mandates. Noting with appreciation the efforts of AFROSAI-E, FSVC, GGS, GIZ, The Global Fund, and ACFE to create a platform for the SAIs and ACAs to meet and explore ways of collaboration are noted with appreciation. Resolutions[87] from this seminar were declared on:

- Institutionalised good governance
- Fraud & Corruption Concepts for SAIs SAI responses to fraud & IFFs
- Creating Financial Action Task Force (FATF) Country grey listing standards
- Policy development on anti-corruption in the region
- Continued SAI – ACA collaboration

High-level considerations:

The auditor's role is to understand how the government has set up systems for detecting fraud and corruption. Corruption may be structural by designing the system to reduce transparency and accountability. The auditor must assess how system failures allow for corruption at all levels of government. The SAI will assess:

- Who is accountable for this process if the risks are documented and tracked with mitigation factors?
- If there is one integrated **Fraud and Corruption Strategy** across all spheres of Government, how is that assessed in terms of efficacy?

However, some red flags might indicate a high prevalence of fraudulent activities in the sector.

[85] Supreme Audit Institutions (SAI) – Anti-Corruption Authorities (ACA)
[86] It took place in Johannesburg, 17-19 April 2023.
[87] See annexure 5 for further details on the resolutions.

Table 12: Red flags for fraud and corruption

CONSIDERATIONS/ELEMENTS	RED FLAGS INDICATING FRAUD AND CORRUPTION
Policies and Legal framework	<u>Outdated legal framework</u> The legal framework may be outdated. In one African country, it was revealed that the Petroleum Act was 40 years old, which reduces its relevance. This makes fraudulent activities more prevalent since it may not be apparent that a law has been breached. <u>Discretionary authority to deviate/derogate/waive from legal framework</u> Decisions to grant tax holidays, tax incentives or other exemptions or benefits. This is mainly caused by the authority given to a PEP, such as the minister, to have discretion over some critical activities, which might result in political capture and interference, conflict of interest, bribery and other corrupt practices.
Government activities/ decisions regarding natural resources and exploration	<u>No proper use of databank</u> When the bidding process is announced, the government should ensure a fair distribution of information on the exploration blocks' possible petroleum and gas reserves. Routines for feeding data from seismic surveys/exploration activities into the databank may be poor, leading to an opportunity to commit fraud. This is when information may be excluded from the databank and sold to companies willing to pay for the information. Companies may also be reluctant to share their seismic data with the government, thus creating an information asymmetry between the parties. Reluctance to part with important information may be due to suspected weak systems and/or corruption in government. <u>Inadequate environmental and social impact assessment and land tenure</u> The process for undertaking ESIAs and granting subsequent authorisations presents specific vulnerabilities. Risk factors

CONSIDERATIONS/ELEMENTS	RED FLAGS INDICATING FRAUD AND CORRUPTION
	include bureaucratic procedural delays in the approval of ESIAs, the highly politicised process of approval of EIAs, and the lack of communities' participation in the EIA process.
Award of contracts and licences	<u>Complex and unclear bidding criteria</u> These make it difficult to bid accurately and know how the criteria will be applied in choosing candidates. They clear the way to award contracts to parties willing to pay bribes to be accepted. If the criteria are spelt out objectively, and their weighting is clear, there is more accountability, thus making it more difficult to choose unfit companies. When companies without the ability to meet the criteria are given a licence, they may opt to sell the rights to another company that can perform according to the contract. Proceeds from selling the licence are then shared with a government official(s) that granted the licence. <u>Lack of host governments' technical, human and financial resources to manage contract negotiation</u> Host governments' insufficient technical, human and financial capacity to effectively manage negotiations is among the factors conducive to corruption risks on the government's side. For example, the lack of supporting technical and economic baseline documents may undermine the government's positions in negotiation. Weak administrative capacity may also result in unreasonable permitting and approval delays that corruption may contribute to reducing or avoiding.
	<u>No pre-qualification rounds</u> Without pre-qualification rounds, the government can be overwhelmed by numerous applications by companies with varying degrees of reliability. Companies may be established to reap the short-term benefits of acquiring a contract. They may have close links to policymakers. Ideally, only reliable companies with a solid reputation in technology, finance and experience should pass the pre-qualification round.

CONSIDERATIONS/ELEMENTS	RED FLAGS INDICATING FRAUD AND CORRUPTION
	Information on exploration blocks is not disseminated. There is unequal access to information in the announced blocks for exploration. Only companies willing to pay bribes to government officials get access to information with significant market value.
Monitoring of operations − exploration and production	No reliable data on production figures Often, the total production volume may not be known, or the information may not be reliable. For example, Nigeria's total petroleum and gas production volume remains a mystery. Estimates are not based on what was pumped from the wells and flow stations but on what arrives at terminals and off-take points. This makes it possible for persons to steal crude petroleum on its way to the terminals without being detected.
	Health, environment and safety Companies may offer bribes to monitoring and controlling agencies and receive leniency regarding applying regulatory requirements. Companies might be permitted to operate petroleum rigs that do not comply with basic safety regulations, thus negatively impacting the environment.
Revenue assessment and collection	Discrepancy between tax return/assessment and payments The companies will declare to have paid certain amounts of tax and royalties. These payments may not fully reach the central bank. Is it a lack of checks and balances, or were these amounts simply leaking along the way or overlooked? This issue brings the integrity of tax officials into question.
	Flaws/shortcomings in the assessment/collection systems or faulty internal controls The revenue authorities do not operate with double-entry bookkeeping or maintain a cashbook or a general ledger. This makes reconciling their figures with the companies' assessments of exploration costs, fixed assets and production

CONSIDERATIONS/ELEMENTS	RED FLAGS INDICATING FRAUD AND CORRUPTION
	figures difficult. It is difficult to detect any discrepancy between the two results, enabling corruption and theft to occur. Lack of discipline, both in management and executive work Auditors should also be aware that the systems are often blamed for discrepancies where simple checks would result in full reconciliations.
	Limited oversight The financial flows generated by the petroleum and gas revenue are not tracked by a body such as the Accountant-General. The flows are left outside government information and management systems. Insufficient or inadequate reconciliation of revenue payments and accounts. Deals between top government officials and the petroleum and gas companies can be made, which ensures that some of the financial flows end up in private hands. Opacity of commodity trading transactions The lack of transparency and oversight in trading practices and processes of the government's share of production provides opportunities for corruption. The lack of open and competitive public tender for the sale of commodities and the use of inappropriate commodity pricing benchmarks may lead to suboptimal allocation and overly favourable contractual terms awarded to the purchaser at the seller's expense. This may occur in particular when the trading company offers little value-added, acting as a mere intermediary between the public entity or its marketing agent and a second-tier purchaser. For example, the literature reports the case of suspicious transactions where a small trading company with no credentials in the trading business was offered generous contractual terms for the trading of refined products even though it would provide no logistical or other reasonable service. The contractual clauses included unusual long-term repayment periods payments in open credit with no financial guarantee

CONSIDERATIONS/ELEMENTS	RED FLAGS INDICATING FRAUD AND CORRUPTION
	requirement, leading to unbalanced terms where the seller assumes substantial default risks. Non-transparent ownership and governance structures of key actors involved in commodity trading Complex and opaque ownership and governance structures of key players in the commodity trading sector may constitute a factor conducive to corruption. This may be observed, for example, in the case of NOCs that create subsidiaries for oil trading activities in purchasers' and consumers' countries or in the case of commodity trading firms using multiple entities with holdings and subsidiaries registered in different jurisdictions, front companies or men to conceal beneficial owners. [i] Lack of transparency on commodity trading-related data Corruption may thrive where there is no full disclosure by host governments of disaggregated data on oil volumes received by NOC; oil sales by NOC (i.e., buyer, volume, crude grade, price and date for every cargo); revenue streams and financial transfers from and to the NOC and to and from the government.
Revenue management and allocation	The sale of natural resources is not transparent. Sales and marketing information on natural resources is not always made available. For example, how crude petroleum is priced or the basis for choosing certain buyers is unclear.

[i] https://www.oecd.org/dev/Corruption-in-the-extractive-value-chain.pdf

4.4. Information systems and considerations along the EI value chain

Many information systems control the governance of EI. Some of these systems are registers, IT applications and databases that contain market-sensitive information. Other systems are used for calculating EI revenue based on the quantity and quality of the commodities produced. Different types of data are captured, generated and exported in IT applications (a-c) and databases (d-j), such as:

a) ERPs for mining and metals
b) Accounting systems (or ERPs) for EI revenues, payroll, etc., e.g., SAP, Oracle

c) Revenue/customs, tax collection systems, e.g., ASYCUDA

d) Mining cadastre data - an overview of mining licences

e) Oil and gas contracts[88] are found in various databases[89]

f) Geological data for minerals

g) Seismic survey data for oil and gas

h) Mineral Output Statistical Evaluation System in Zambia (MOSES)

i) Crane (Petroleum data management of Petroleum Authority of Uganda)

j) Royalty Range and several TP databases; see description below

4.4.1. Information systems

ERPs

Enterprise Resource Planning (ERP) is software that facilitates automation in business operations. The metals and minerals industry is highly resource intensive (labour, investments, technology), which increases the need for ERPs to manage the main business processes, such as orders and sales, HR and payroll, and purchase to pay, in addition to tracking business resources (cash, raw materials, production capacity). ERP software for the mining industry forms a network of all the departments and divisions for sharing and exchanging data and information. This information is stored in centrally located databases for instant access whenever required.

ERPs for the mining industry involve many processes for the successful functioning of business. Allocation of resources, logistics transportation and equipment management are important processes in the mining industry. Every truck that carries mined metals or minerals must be tracked to keep track of inventory and funds. Decisions made internally can affect business strategies, thus affecting business processes and operations. ERPs keep track of all changes to business components and facilitate information flow.

Similarly, there are also many ERPs for oil and gas. **SAP** is an ERP that is widely used for accounting (FI) and payroll (HR). However, SAP has many modules that ensure interconnection and performance efficiency without using several interfacing applications. SAP modules are integrated into a single application, and organisations can choose which modules to implement and pay for according to their needs. Many entities in the EI sector widely use SAP. Several countries have implemented ERPs for financial management, called Integrated Financial Management System (IFMIS).

[88] ResourceContracts.org
[89] OpenOil

Other IT Applications – these IT applications are used for specific accounting or controlling tasks in the EI value chain. They can be used, e.g., accounting, collection, recording of EI revenues, payroll, etc.

Mining Cadastre data, a mining licence database, are available on Resourcedata's website[90]. This information is also available on the Kenya[91], Namibia[92], Tanzania[93], Zambia[94] and Uganda[95] websites.

MOSES[96] - Mineral Output Statistical Evaluation System is a mineral tracking system designed by UNCTAD[97] and the Zambian Revenue Authority (ZRA). Its purpose is to facilitate detecting illicit trade practices that drain billions of dollars yearly from the copper-rich nation and its people. The government recovered about $1 million in unpaid export dues from mining companies just one year after piloting the MOSES in 2016.

Incorrect or misinvoicing, under-declaration of exports, and other fraudulent trade practices cost the southern African nation about $12.5 billion between 2013 and 2015, according to UNCTAD's Economic Development in Africa Report 2020.

In addition to tracking copper and other minerals as it is transported from mines to borders, the system allows mining companies to submit their monthly mineral production reports electronically instead of travelling to the capital, Lusaka, to submit them in person. Delays have been cut from up to 230 days to less than one month, allowing the country's statistical office to produce more up-to-date national statistics reports for policymakers.

Other governments are also using MOSES to capture IFFs out of the continent, which UNCTAD estimates at $88.6 billion annually.

MOSES was developed as part of UNCTAD's Automated System for Customs Data (ASYCUDA), which has been helping developing countries modernise their customs clearance processes since the 1980s.

In Zambia, UNCTAD trained a local team of system developers who became responsible for maintaining and further developing the tool after the project ended in 2017. The local team is currently working on a new module for companies to be able to submit reports for gemstones.

[90] Mining Cadastre Portal - Datasets - ResourceData
[91] Kenya Mining Cadastre Portal - Home - FlexiCadastre
[92] Namibia Mining Cadastre Portal - Supported By Trimble Land Administration - Developers of Landfolio
[93] Tanzania Mining Cadastre eGov Portal - Home - FlexiCadastre (madini.go.tz)
[94] Zambia Mining Cadastre Map Portal – Trimble Landfolio
[95] Uganda Mining Cadastre eGov Portal – Trimble Landfolio - Home (minerals.go.ug)
[96] Mineral tracking tool helps Zambia combat illicit financial flows | UNCTAD
[97] United Nations Conference on Trade and Development (UNCTAD)

ASYCUDA[98]- The UNCTAD Automated System for Customs Data is an integrated customs management system for international trade and transport operations. The applications are designed and developed specifically for customs administrations and the trade community to comply with international standards when fulfilling import, export and transit-related procedures.

Through its ASYCUDA programme, UNCTAD aims at:

- Modernising customs operations and helping to improve revenue collection
- Facilitating trade efficiency and competitiveness by substantially reducing transaction time and costs
- Improving security by streamlining procedures of cargo control, transit of goods and clearance of goods
- Helping fight corruption by enhancing the transparency of transactions
- Promoting sustainable development by cutting down on the use of paper, using electronic transactions and documents

According to the information on ASYCUDA - User Countries, sixteen out of twenty-six AFROSAI-E member countries are using ASYCUDA as of June 2022. These are listed below, along with the year they adopted ASYCUDA.

Angola - AGT (2016), Eritrea, Kingdom of Eswatini Revenue Authorities - ERA, Gambia - GRA, Lesotho Revenue Authorities (2015), Liberia - LRA (2009), Malawi - MRA (2015), Mozambique - ANAC, Namibia (2017), Rwanda RRA (2016), Seychelles - SRC (2013), Sierra Leone - NRA (2019), Sudan (2011), Zambia - ZRA (2016), Zimbabwe - ZIMRA (2008) and Uganda - URA (2015).

CRANE[99] - Petroleum Authority of Uganda's Petroleum Data management.
The PAU manages all the data generated from oil and gas activities in Uganda and assesses and responds to requests for data. The data includes Geological and Geophysical (G&G), Engineering, HSE, Costs, National Content, Subsurface and Surface Facilities. In line with the above, the PAU continues to implement the following:

- The establishment of an internationally standardised and competitive tier-three data centre.

[98] Customs automation - ASYCUDA | UNCTAD
[99] Petroleum Data Management – Petroleum Authority of Uganda (PAU).

- Efficiency in service delivery by establishing information, Communication and Technology (ICT) Infrastructure and e-government systems, the National Supplier Database (NSD) and National Oil and Gas Talent Register (NOGTR); and,
- The development of the National Petroleum Data Repository.

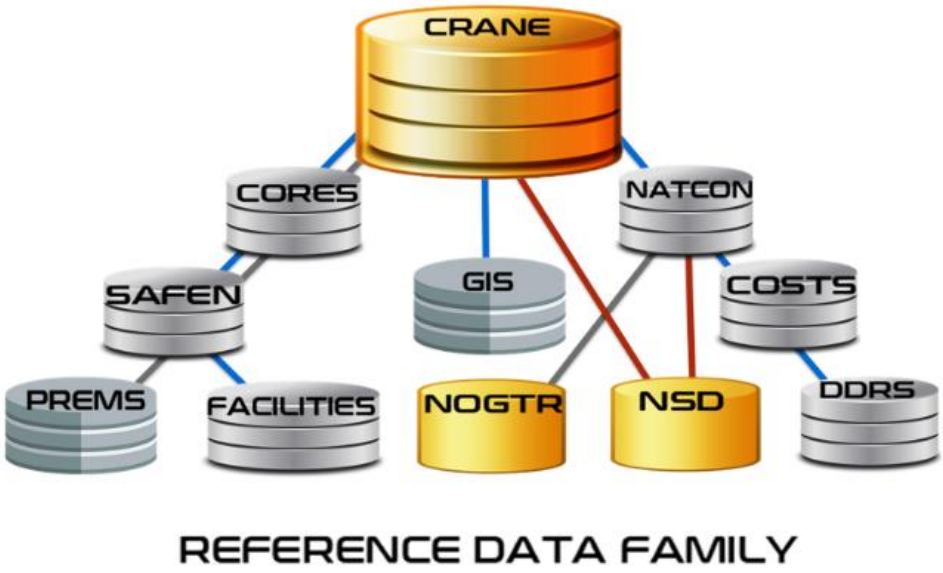


Figure 16: SAI Uganda has conducted an IT audit of this system

Royalty Range[100] provides data on private company financials and ownership, royalty rates, loan interest rates and service fees. Below are also links to some transfer pricing sites:

Transfer Pricing Benchmarking Database - TPGenie - Transfer Pricing Documentation Software (intrapricing.com)

Comparable Databases | Transfer Pricing | MENA | Thomson Reuters

The Transfer Pricing Database of data presents information on the "Sixth Method" corresponding to 10 Latin American countries | Inter-American Center of Tax Administrations (ciat.org)

International Transfer Pricing Analysis | Bureau van Dijk (bvdinfo.com)

Comparables | Transfer Pricing | EdgarStat

4.4.2. Application controls and general IT controls

When an auditor considers relevant risks for financial statements, for example, revenues from EI and where he/she is using IT applications throughout this process, financial auditors must consider the "shall" requirements in ISSAI 2315. These requirements are incorporated into the FAM and related working papers.

[100] See more info on website: https//www.royaltyrange.com

Performance and compliance auditors may also find these considerations useful because the EI systems (MOSES, CRANE, Cadastre) are «feeding" systems, meaning they form the basis for calculating the country's revenue. This is governed by laws and regulations – and ensuring valid, complete and correct data in these systems will help ensure that the revenue from EI is correctly stated.

IFMIS, ASYCUDA and other revenue systems are financial systems. These systems should be audited in accordance with the ISSAI 2000-series, specifically ISSAI 2315 for IT.

The auditor must gain an understanding of the entity's information system. IT applications, which are part of the information system that the user interfaces with, must be identified by the auditor, e.g.:

- IFMIS e.g., Oracle EBS, SAP, Epicor)
- Payroll system, e.g., IPPIS
- Tax systems, e.g., ASYCUDA
- Accounting systems, e.g., Sun Systems, Xero, QuickBooks
- Excel spreadsheet
- Any other relevant information system that is relevant for the audit of EI (see list above)

In this process, it is important to understand whether the IT applications are complex in nature. In obtaining an understanding of the IT environment relevant to the transaction flow, the auditor gathers information about[101]:

I. The nature and characteristics of the IT applications
II. and supporting IT infrastructure and IT.

It is also important to understand whether and how the IT applications are interfaced with other applications. Whether the data transfer is fully automated or there are certain manual processes involved. How does data from ASYCUDA or the "feeding" systems end up in IFMIS or the consolidated financial statements? EI auditors should gain an understanding of this process and identify information processing controls that ensure that only valid, complete and accurate data is input, processed through the feeding system, and output and uploaded (or transformed to financial data and input) into the financial systems.

There is less risk of human error in fully automated processes than manual ones. For example, if the entity processes information or transactions in an Excel spreadsheet, and the data-capturing is done manually. In that case, it is prone to more errors than if the data were transferred in a batch file, e.g.,

[101] ISSAI 2315, Appendix 5, para 4

from revenue application to GL in an ERP/IFMIS. Most entities in the extractive sector use Excel spreadsheets to capture, process and manage data and produce reports, but they do not take sufficient measures to secure the data in the Excel files.

The auditor should consider whether the application is in-house developed and customised, especially for extractive activities/processes along the EI value chain or if it is a standard application. There is a higher risk with in-house developed applications than with standard applications.

The auditor should also assess if the entity relies heavily on system-generated reports, understand the data flow of the output of the relevant report and consider the risks that might occur in the transaction flow and whether the output is correct and valid. Integrity of data is key to understanding this process.

The auditor should assess whether the entity's IT environment gives rise to risks arising from the use of IT.

THE IT ENVIRONMENT – is the IT applications and supporting IT infrastructure, as well as the IT processes and personnel involved in those processes, which an entity uses to support business/extractive operations. [102]

(i) **An IT application** is a programme or a set used in initiating, processing, recording and reporting transactions or information.

(ii) **The IT infrastructure** comprises the network, operating systems, databases, and related hardware and software.

(iii) **The IT processes** are the entity's processes to manage access to the IT environment, manage programme changes or changes to the IT environment and manage IT operations.

What kind of information processing controls does the entity have, and what risks do they mitigate? These are controls relating to the processing of information in IT applications or manual information processes in the entity's information system that directly address risks to the integrity of information (i.e., the completeness, accuracy and validity of transactions and other information).

Does the entity have policies and procedures that govern IT controls?

Are the IT controls designed, implemented and operating effectively?

[102] ISSAI 2315 para 12 (g)

To understand this, the auditor should obtain policies and procedures that at least include:

a) User management and passwords
b) Logs and audit trails
c) Change management
d) Backup
e) Physical and environmental controls

Is the **IT department** adequately resourced to support the management of the IT environment?

When keeping the financial and other IT systems related to the EI value chain running and day-to-day problem-solving, is there sufficient segregation of duties?

To understand this, the auditor should obtain:

- An organisation chart
- An IT business plan – responsibilities of IT dept
- Job descriptions/staff competencies & qualifications/training programme
- Budgets

Outsourced IT: The auditor should also identify if the entity has outsourced any IT services relevant to the financial systems or audit any steps along the EI value chain. The auditor should determine if a contract outlines roles and responsibilities and ensure that the entity's financial data related to financial statements or other extractive data related to EI value chain audits is kept safe from unauthorised changes and is available when needed. Contract with Service Level Agreement is a key document in this regard, and the auditor should obtain this and assess if there are risks related to the integrity of the data.

If the risk arising from the use of IT is high, the auditor shall test general controls in addition to the information processing controls (manual and automated application controls).

The figure below illustrates how it all is interrelated. It does not apply to any particular audit type and is relevant to all audit types along the EI value chain. In the centre are the IT applications such as SAP and ASYCUDA. There will be automated embedded controls in the application.

If the entity relies on these controls, the general IT controls must be adequate as they are a protective shield around the applications. General IT controls are those related to access, such as users and passwords, change management (regular updates), and security (backup, cyber security, firewall, etc).

The risks that might occur and what the auditors need to assess are illustrated in red/maroon around the general IT controls. The risk might be that someone has unauthorised access to modify business-sensitive information.

The EI entities might be vulnerable to hacking that might cause system crashes. If the entity does not have a backup, it can be a severe threat to the existence of the entity, which might lead to a significant loss of revenues and services to the citizens.

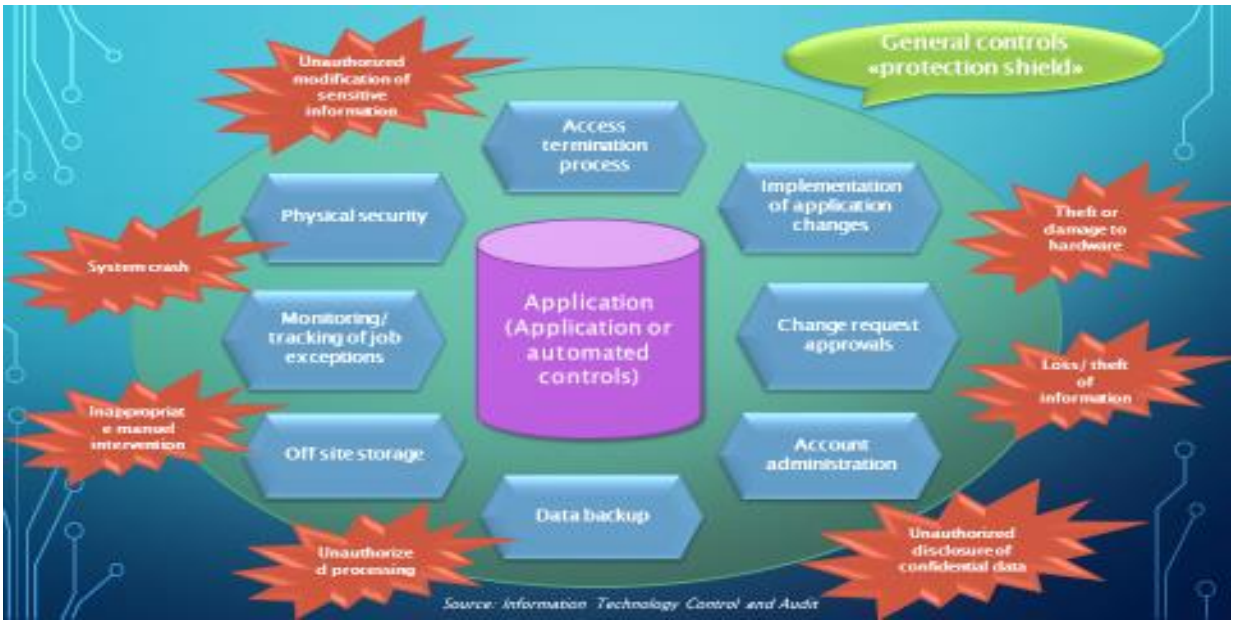


Figure 17: General IT controls

General IT controls are implemented to address the risks arising from IT use. Examples of risks arising from the use of IT include risks related to inappropriate reliance on IT applications that are processing data inaccurately, processing inaccurate data, or both, such as[103];

- Unauthorised access to data that may destroy data or improper changes to data, including recording of unauthorised or non-existent transactions (such as salary to ghost employees, fake invoices, misinvoicing/TP, altering the number of mining minerals, metals, etc., override/changing of prices of goods and/or revenues). Particular risks may arise when multiple users have access to a shared database.
- IT personnel are granted access privileges beyond what is required or necessary to perform their assigned duties, breaking down the segregation of duties.
- Unauthorised changes of master data/permanent data (e.g., change of bank account number) or changes to data in master files.

[103] ISSAI 2315 appendix 5 para 18.

- Unauthorised changes to IT applications or other aspects of the IT environment occur.
- Failure to or postpone necessary changes to IT applications (updates) or other aspects of the IT environment. (We can relate to updating our laptops, mobiles/cell phones with the latest updates).
- Potential loss of data or inability to access data as required. (Data loss might be records captured for the financial statements. If there is no backup, the data cannot be restored, in the same way as when someone forgets to save a file on a laptop or the system/laptop has crashed, that information/data is lost permanently).
- Inappropriate manual intervention.

SAI Tanzania conducted forty information system audits comprising twenty-one standalone information system audits and nineteen as part of the financial audit for financial year 2021-2022. These audits were conducted on the operational efficiency of the e-Government Authority. Even though it does not focus on EI, it describes IT General Controls and Application Controls in detail. Therefore, this report can be useful and an inspiration for auditors while considering auditing EI-related IT systems.[104]

4.4.3. Cyber threats as risk areas in EI audits

The increased use of interconnected/integrated IT applications has increased the risk arising from the use of IT. Under these conditions, opportunities for cybercriminals are multiplying. Not surprisingly, several high-profile cyberattacks have targeted the oil and gas industry in recent years. According to PwC Cyber threat intelligence (pwc.com):

- Of the CEOs, forty-nine per cent saw Cyber risks as the number one threat in 2022.
- Of the CISOs and CIOs, sixty-six per cent predicted a rise in malware-via-software-update incidents in H_2 2021.
- Of the CISOs and CIOs, sixty-four per cent expected a jump in ransomware and software supply chain incidents in H_2. Eighty-six per cent that PwC responded to were attributed to cyber criminals in 2020.

The auditors need to be aware of these risks, but to audit these will require specialised expertise, and the team would need to bring experts on board in case such risks are assessed as high and whenever they are relevant for the EI audits along the EI value chain.

[104] Annual_General_Report_on_the_Audit_of_Information_Systems_FY_2021-22.pdf (nao.go.tz)

Up stream	Middle stream	Down stream
• Manipulating field device parameter settings • Interfering with key safety controls and measures • Theft of intellectual property such as geological data, production information and bidding documents	• Unauthorised access to and manipulation of relief valves, compressors and manually overriding automatic shutdowns in pipelines • Altering automated storage gauge controls and alarms (level, temperature, pressure)	• Controlling automated gauges at retail stations • Theft of customer credit card and sales data • Tampering with market data and transaction systems
Key business risks posed by cyberattacks • Damage to critical infrastructure • Environmental damage • Operational shutdown • Plant sabotage • Utilities interruption • Production disruption • Product quality (inferior oil or gas quality) • Undetected spills • Illegal pipeline tapping • Safety incidents (death or injury) • Financial loss • Reputational damage • Market disruption • National security		

Figure 18: Cyber breaches' impact on oil and gas production streams

Box 7 - The first part of the box provides an EI audit example from Norway, 2019. Moody's analyses of industries exposed to cyber risks are in the second part of the box.

SAI Norway (OAGN) conducted a compliance audit of the Norwegian Petroleum Directorate's (NPD) Information security measures.

The Norwegian Petroleum Directorate is central to managing the oil and gas resources on the Norwegian continental shelf. NPD processes sensitive information in several ICT systems, including political, stock exchange-sensitive, and business-sensitive information. Implementing a management system for information security is important to protect the information that the Directorate processes. This need increases in line with the increased digitisation of public administration. In its reports for 2013 and 2016, OAGN reported significant weaknesses in information security in NPD.

The objective of this audit was to check whether NPD works systematically and continuously to increase information security by implementing controls to prevent and detect breaches. The Directorate is required by law to implement a system of internal control based on good practice in information security. The audit concluded that NPD had established the basis for systematic work with information security. However, due to significant shortcomings in implementing controls, there was a risk of unauthorised access to ICT systems if NPD was affected by a cyberattack.

Below are presented analyses from Moody on cyber risks in the various sectors. It includes oil and gas, mining and government. They have applied risk ranking that can be useful for

auditors in the initial risk assessment and in identifying which category the audited entity falls under. Oil and gas and mining companies in Africa are, in many cases, multinational companies. Therefore, it might be relevant and worthwhile for auditors to pay attention to that fact.

In a special report, Moody's[105] on cyber risks (2022) concluded that because a new corporate landscape had emerged since the start of the COVID-19 pandemic, many businesses had shifted to virtual workforces, decentralised systems, wireless mobility and remote access for partners and vendors. Companies were also digitising their information — by moving their analogue businesses to e-commerce platforms or cloud services connected to the internet. Operating virtually is driving companies to fortify their digital security practices as cyberattacks continue to rise around the globe.

The analyses reveal which industries and sectors face the most significant risk of cyber threats as cyberattack data breaches are costly to businesses. The consequences of cyberattacks can be severe and lasting for industries, governments and individuals. Successful corporate and critical infrastructure attacks can cause major disruptions to the supply chain and essential products, reduce services, or knock critical infrastructure offline.

In May 2021, a cyberattack on the Colonial Pipeline Company shut down its entire pipeline network in the Eastern US for six days, leading to shortages and price increases at the pump.

Advanced economy sovereign governments' risk increased from low to moderate as federal governments are among the most attractive targets, particularly for nation-state actors. Public auditors need to pay more attention to this area in future audits.

With increasing digitalisation, Africa, too, will become vulnerable to the successful cyberattacks seen in more digitalised countries. Parallel with the digitalisation effort, Governments must also focus on security. Their overall cyber risk level applied in Moody's analyses is assessed on a scale of:

VERY HIGH-RISK EXPOSURE:

Highly interconnected and digitised, it provides critical services for the broader economy and typically has less developed cyber risk mitigation strategies.

[105] Industries boost cyber defences against growing number of attacks (moodys.com)

HIGH-RISK:
High cyber risk exposure that is partially offset by more advanced forms of mitigation practices.

MODERATE RISK:
Average exposure and average safeguarding and mitigation practices.

LOW RISK: Relies less on data and technology, has weaker mitigation practices, and is unlikely to affect the broader economy if successfully attacked.

4.4.4. Applying Data Analytics in the audit of EI

A vast amount of data is available at the entities audited by the SAIs and from external databases. As mentioned in Chapter 4.4.1. the auditor can retrieve data such as contracts, mining cadastres, the quantity of oil or mining/minerals extracted or deposits that can be extracted (exploration/monitoring data), commodity prices (revenue), TP databases, etc. The auditor may consider using all this data available in the audit of the EI but should also be mindful of the quality of the data and assess if it is reliable. The audit team needs to identify what kind of data is relevant and reliable and how it relates to the risks.

The auditors may consider performing data analytics to help handle the (big) data effectively. When it has been determined, auditors must also assess the purpose of the analyses and outcomes that may help audit the EI.

What is big data?

Big data is large in *volume* (terabytes, even petabytes), complex in *format* (structured and unstructured formats like photos, maps, text, video, satellite data, sound, etc.), and is aggregated at high speed (*velocity*), making regular processing power and software inadequate. More attributes have been added to the definition in recent years, like *value* − data has become a commodity, either by providing a competitive advantage or as an asset, and *veracity* − which questions the reliability of the data. Most SAIs analyse data to some extent in their audits − does it matter whether it is big data or not? We think not. "Value" should be the keyword for SAIs. If the data analytics we conduct add value to the audits of EI, our reports and the citizens, auditors want to encourage more of it.[106] The SAI/auditor may use IT software/tools such as Excel (advanced), Structured Query Language (SQL), Advanced Teammate

[106] AFROSAI-E's SAI Guide - Becoming a Data Driven SAI, p. 6

analytics, Power BI, R and Python-Statistical Programming and other relevant tools and skills in presentation.

Auditors can use the already available data to auditors from IFMIS/ERP and/or any IT system mentioned above. If it is insufficient, they may also use external data available in various databases to perform audit data analytics on all audit types, i.e., financial- compliance- or performance audits. Our focus in this guideline is to help auditors assess whether the data available can be used in performing audit data analytics that might give useful insight while auditing in any area of EI.

Audit data analytics (ADA)

Two types of data analyses can be performed:

- **Exploratory** data analyses are applied in identifying and assessing risks. Exploratory analyses are perceived as suitable for audit data analytics. Auditors can identify patterns and assess how they deviate from the norm, such as expected revenue compared to actual revenue or the volumes produced in mining or oil and gas. Using graphs, etc., to visualise data and explore the outliers is recommended. Exploratory analyses also encompass predictive analyses and can be performed using external data to assess estimates and consider whether the estimates are realistic.
- **Confirmatory** data analyses are applied to a hundred per cent of the data population to confirm either accuracy, completeness, or existence or to identify deviations. Audit standards (ISSAIs) requirements on audit evidence apply here as in any other audit evidence gathering. Audit evidence needs to be reliable and relevant, according to AICPA.

We will not discuss how to conduct data analyses as it is a separate discipline. The information above is mentioned to help the auditor consider if data analyses can be performed on some of the EI audits. However, before you start, you need to assess the purpose of the analyses and have a fairly good idea of the expected outcome.

4.4.5. High-level IT audit considerations

Auditors should be aware of the risks related to information systems that are relevant for EI and consider the following in the process of risk assessment along the EI value chain, and gather audit evidence/information from the entity to answer the following questions:

- Does the organisation/entity have an IT strategy, policies, or annual IT plan?
- Is the IT strategy/IT policy implemented?
- How often does the organisation go through its governance structures to discuss and review its IT security defences and policies?

- Do the organisation perform regular risk assessments on the integrity of its systems?
- Is there sufficient IT competence in the organisation?
- Has the organisation instituted effective training programmes instructing employees on appropriately handling and protecting sensitive data?
- Is there sufficient segregation of duties in the organisation?
- Management should assess if the IT environment is complex and,
- Assess if the entity and its IT environment are too complex to secure and,
- Assess if they have secured against the most important risks today and whether they are sufficiently focused on future security and,
- Management should assess if third parties and the supply chain pose risks to the entity.
- Likewise, management should enquire from the entity which specific risks they are worried about and how they are safeguarding against them.
- Which specific controls have the entity implemented to mitigate the risks they have identified and are concerned about?
- Does the entity have a cyber security and threat management policy? If yes, have they implemented it? Do they monitor the incidents regularly?
- Has the entity outsourced services to third parties, and do they have contract and service level agreements?
- Management should assess whether the entity is exposed to risks related to third parties and consider if there is available data from the entity that may be used for data analysis.
- They should assess if the data is reliable and relevant.
- And assess if available data in external databases can be used in data analyses.
- And assess whether the team has competence in data analytics or has considered using experts.

These are just some of the considerations the auditor might consider regarding IT. The auditor's assessment and audit evidence/information gathering should not be limited to only these questions. Auditors should also apply their professional judgement and understanding of the entity and add on whatever is required in the risk assessment process regarding information systems used in the EI along the value chain.

4.5. Energy transition

4.5.1. Planning for the green shift and the energy transition

A key sustainable policy ensures that a country does not become too dependent on revenue from a single source of EI material such as oil, gas, metals, etc. Prices will fluctuate, and some products will

gradually be phased out. This is especially true for oil and gas. The UN Secretary-General António Guterres declared the following on 4 April 2022, on the day of the launch of the 3rd Main Report from the IPCC:

"But the truly dangerous radicals are the countries that are increasing the production of fossil fuels. Investing in new fossil fuel infrastructure is moral and economic madness. Such investments will soon be stranded assets – a blot on the landscape and a blight on investment portfolios."[107]

The Secretary-General warned in response to the collective failure to reach the 1.5-degree limit set by the COP 26 Climate Conference in Glasgow 2021 at a press conference on climate change on 27 July 2023, he said in his opening remarks:

"*The era of global warming has ended; the era of global boiling has arrived. Leaders must lead. No more hesitancy. No more excuses. No more waiting for others to move first. There is simply no more time for that. It is still possible to limit global temperature rise to 1.5 degrees Celsius and avoid the very worst of climate change. But only with dramatic, immediate climate action*."

Energy transition and climate risk

According to the resolutions from the COP 26 Climate Summit in Glasgow 2021[108], global CO_2 emissions must be cut in half by the end of 2030. The goal is to limit the global temperature increase to 1.5 degrees. If this is to happen, there must be a major energy transition from carbon fuels, such as oil, natural gas, and coal, to renewable energy sources.

This represents a challenge to many countries. On the one hand, some countries have made themselves dependent on oil and gas revenues and have failed to diversify their economy. Examples of such countries are Nigeria, Angola, and South Sudan. On the other hand, some countries have recently discovered oil and gas reserves, made major investments, and are looking forward to reaping the benefits from these. Examples of such countries are Mozambique, Tanzania, Kenya, and Uganda. For both these groups of countries, an energy transition will be challenging because of high expectations in the public and low capacity to make an energy transition. The question is whether they need to act swiftly to meet the climate risk or stick to their intended plan and continue to become a petroleum-producing country. What do we mean by climate risk?

[107] Secretary-General's video message on the launch of the third IPCC report [scroll down for languages] | United Nations Secretary-General
[108] Decision 1/CMA.3 (unfccc.int)

Climate risk may have at least two different meanings:

- The risk is that oil and gas production investments will yield a negative return rate because of a future drop in global demand resulting from
- The risk of physical impacts from climate change includes extreme weather, floods, droughts, and rising sea levels.

In this context, we are more concerned about the first risk, which is policy risks related to major investments in the oil and gas sector, which inflict great losses on the government.

Will oil and gas prices continue to be high?

So many factors contribute to the oil and gas prices that it is impossible to say for sure. We know that renewable energy sources such as solar and wind power are becoming cheaper. Many countries are developing these energy sources so as not to become too dependent on unreliable oil and gas suppliers, such as Russia. Many say this short-term will benefit oil and gas-producing African countries, especially those developing LNG infrastructure. Europe, in particular, will look for other natural gas providers to reduce their dependence on Russia.

Even though the increased demand for natural gas has created optimism in natural gas producers in Africa, there are reasons for caution. According to NRGI,[109] such reasons include:

- Oil and gas producers have limited spare capacity to increase their supply quickly.
- Investment decisions in Mozambique and Tanzania are likely to take time. This means that significant production is unlikely before 2030. By that time, Europe's energy demand challenges may have been resolved.
- If Russia's supply is redirected to Asia, this might result in a reduced shipment of oil and gas from Africa to Asia.
- Europe's energy demand may be met by LNG exports from the US and suppliers in the Middle East instead of Africa.
- Improvements in energy efficiency and the development of alternative technologies may lead to reduced demand for energy from Africa.

[109] Will Africa really be "Europe's next gas station"? | African Arguments

4.5.2. Energy transition minerals and governance

Mineral resources are essential to the energy transition, and demand for transition minerals such as lithium, graphite, cobalt and nickel is already increasing. Commodity markets, however, are rarely predictable, and producers and consumers of transition minerals will face uncertain and volatile market conditions as renewable energy technologies evolve. The boom-and-bust nature of demand creates an imperative for strengthening the governance of mineral value chains to ensure that the means of production are consistent with the ends to which minerals are used for the benefit of people and the planet.

Demand will probably increase steadily for minerals used across various technologies – including aluminium, copper, chromium, and molybdenum. For minerals used in a small range of technologies, such as cobalt, lithium and graphite, future demand is estimated to increase at a particularly fast pace, potentially requiring an increase in current production levels by at least five hundred per cent by 2040. The demand for minerals in this latter group will likely be volatile and unpredictable as technological innovations could change requirements.

Definition of transition minerals/critical minerals

The term 'transition minerals' refers to minerals essential for transitioning from fossil fuels to low-carbon energy sources and transportation. These are sometimes called 'green minerals', 'energy transition minerals' (ETMs), 'strategic minerals' or 'critical minerals'. The commonly used term 'critical minerals' emphasises these minerals' essential and irreplaceable role in national security, economic efficiency, and energy security. The criticality of minerals is also defined by supply chain vulnerabilities when there is a concentration of mineral production or processing in a limited number of countries.[110]

Governance: opportunities and risks

The energy transition offers sustainable development opportunities for resource-rich countries through mining investment, mineral production, and value addition. The rush to supply minerals deemed essential to energy access and transition, however, increases tension between the rights of stakeholders in mineral-producing countries and the needs of global society. Governance and corruption risks in transition mineral value chains could negatively impact mining host communities, host governments and mining companies, midstream and downstream businesses, consumers, and governments sourcing minerals. Ultimately, the energy transition's success is threatened by a lack of transparency and accountability around transition minerals production, commodity trades and financial flow.

[110] EITI Mission Critical Report 2022.pdf

The research in EITI's report «*Mission Critical: Strengthening Governance of Mineral Value Chains for the Energy Transition*» has identified governance risks at a subnational, national, transnational, and global level, exacerbated by current trends in the demand for critical minerals. Many of these risks, such as potential shortcuts in consultation processes, encroachment into conservation areas and the depletion of water resources, will be hardest felt by the most vulnerable communities in regions rich in these minerals. At a national level, price volatility may lead to unpredictable revenue flows, thus posing challenges to sound economic planning. Strong export demand may reduce incentives for value addition and beneficiation.

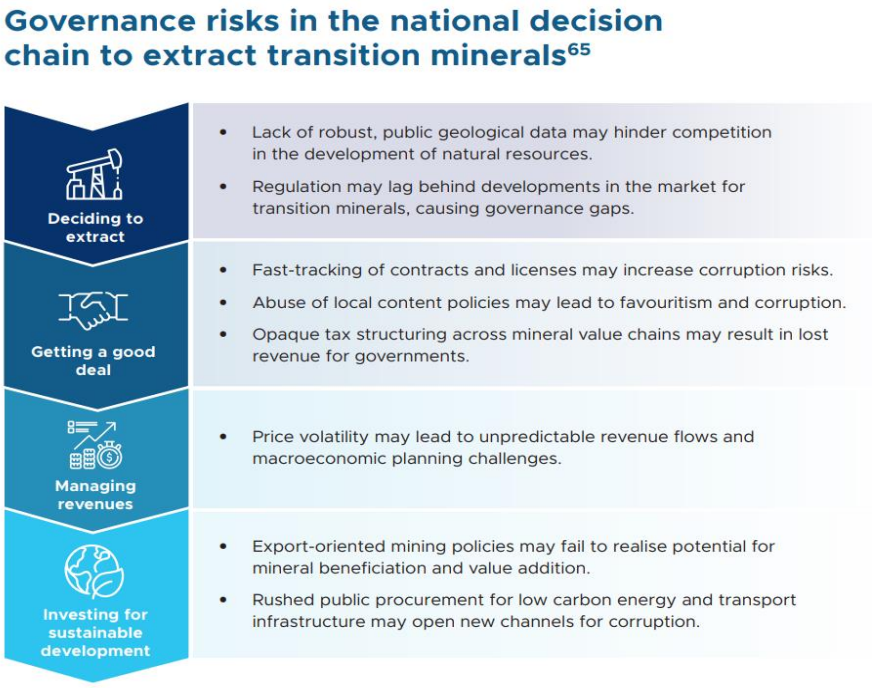


Figure 19: Governance risks at the national level

One of the main challenges is that many local governments are inexperienced at dealing with powerful, well-funded international mining companies. The consequences for local governments facing these challenges include loss of potential revenue and economic opportunities, fewer local jobs and access to training, weak negotiation outcomes, and a greater chance of adverse environmental impacts. In transnational supply chains, there are risks of increased smuggling or illicit mineral flows and corruption, where governance risks ultimately disrupt the supply of the minerals needed for low-carbon energy technologies. Yet balancing these risks is an opportunity – to attract investment, increase local procurement, improve employment and livelihoods, and address the needs of local communities.

Figure 20: Governance risks at the transnational level

Governance risks at the global level affect all stakeholders in the energy transition. These include disruption to the supply of transition minerals, geopolitical conflict and the unequal burden of transition mineral development placed on producer countries (the 'decarbonisation divide'). There is an opportunity for greater international and regional cooperation to ensure that transition minerals contribute to a just energy transition.

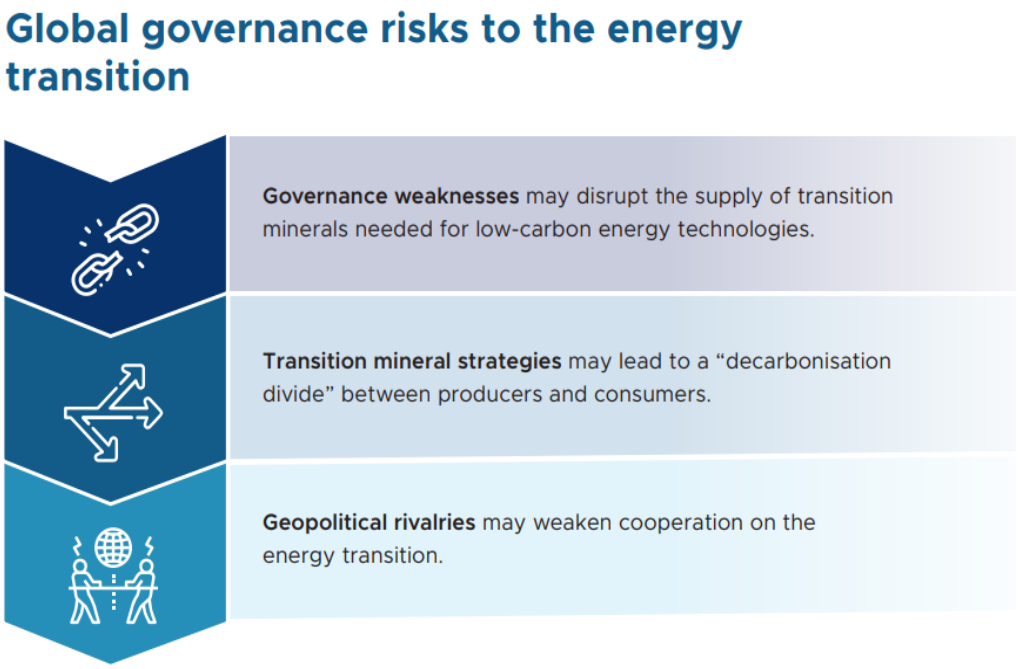


Figure 21: Governance risks global level

Poor governance exacerbates the risks of adverse impacts, including loss of natural habitat, contamination, land and water access, and negative impacts on local people's livelihoods, health, and well-being. Without effective governance, however, countries face the risk of revenue losses, investment impediments and corruption.

However, there are numerous opportunities to address these risks. In resource-rich countries, there is an opportunity to improve governance frameworks and transparency to attract investment in the extraction and beneficiation of transition minerals. This can promote local procurement, employment and livelihoods linked to mining, social investment, and community-led development. There is also an opportunity for industry to collaborate in developing value chains from mining to manufacturing and deploying energy transition technologies.

For governments and consumers in countries importing transition minerals, there is an opportunity for more responsible and reliable sourcing through regulation and open data initiatives. There is also an opportunity for companies in transition mineral value chains to use voluntary standards to certify their ESG performance and meet their supplier's due diligence requirements. At the global level, there is an opportunity for greater international and regional cooperation to ensure that transition minerals contribute to a just energy transition.

4.5.3. Limitations – uncertainties and data gaps

One major source of uncertainty is that many transition minerals are by-products of main economic minerals. Cobalt is primarily a by-product of copper and nickel mining, but all mines do not recover it. Under favourable economic conditions, by-products such as cobalt can be extracted at refineries. However, by-products are often not accounted for in resource and reserve estimates nor recorded in mine production volumes, and they can have unquantified smelter or refinery production. Therefore, there are significant data gaps for these metals.

Uncertainties exist in available geological information. Some countries have substantial geological information repositories that may be restricted or difficult to access. Other countries lack basic geological information or are poorly mapped. Moreover, the estimation of reserves and resources is dynamic and can change significantly as geological knowledge grows due to successive exploration programmes and commodity price fluctuations. Another data gap exists in the production and trade associated with ASM. For example, cobalt and tin production and trade contain large amounts of

unaccounted mineral supply.[111] Finally, there is a significant gap in knowledge relating to the levels of recovery of minerals from waste streams and abandoned mines.

4.5.4. Africa climate summit[112]

Climate change poses significant risks to the global community, with physical effects causing substantial economic losses. During the past decade, storms, wildfires, and floods have resulted in substantial GDP losses. Africa, in particular, faces severe climate-related challenges, including drought, desertification, and increasing cyclones, leading to displacement, migration, and food crises. The continent is also disproportionately affected by the global temperature rise and is projected to experience escalating physical climate risks.

Key outcomes from the first Africa Climate Summit[113]

Urgent and Collaborative Climate Action Required to Achieve Goals of the Nairobi Declaration. From 4-6 September 2023, the African Union and the Government of Kenya co-hosted the inaugural Africa Climate Summit to discuss sustainable solutions to global climate challenges under "Driving Green Growth and Climate Finance Solutions for Africa and the World." The summit culminated in the *Nairobi Declaration.*

Approximately 30,000 delegates participated, including eighteen Heads of African States, the Secretary-General of the United Nations, António Guterres, and the President of the European Union, Ursula von der Leyen, with discussions centred on climate action financing, the green growth agenda for Africa, and climate action and economic development.

Secretary-General of the United Nations António Guterres voiced support, emphasising the need for reforming the global financial system to support developing countries in their just and equitable transition towards sustainable development. With its abundant critical minerals and solar resources, Africa can play a pivotal role in transitioning to renewable energy with the needed reforms of multilateral lending institutions.

To meet the emission reduction targets outlined in the Paris Agreement, Africa requires a substantial USD 2.8 trillion by 2030. Achieving this goal necessitates a ten-fold increase in climate investments, equivalent to nearly ninety-three per cent of the continent's current GDP. Additionally, African nations

[111] Global Witness (2022), The ITSCI laundromat. Retrieved from https://www.globalwitness.org/en/campaigns/naturalresource-governance/itsci-laundromat/
[112] africaclimatesummit.org/resources
[113] Key Outcomes from the first Africa Climate Summit | Sustainable Energy for All (seforall.org)

often pay up to eight times more for financing from multilateral lending institutions than developed countries. This imbalance results in recurring debt crises, leaving little or no resources for climate action. During the summit, donor nations and multilateral organisations pledged approximately USD 26 billion for climate investments. Notable commitments included the United Arab Emirates' 'non-binding letter of intent' for USD 4.5 billion toward clean energy and USD 450 million for carbon credits. Denmark also announced a USD 232 million pledge for the Green Climate Fund's second replenishment.

The United Kingdom, United States, Canada, Finland, and Germany also pledged several financing and debt swaps for green projects. The Africa Development Bank committed USD 1 billion towards adaptation and pledged to invest USD 25 billion in climate financing by 2025. Other commitments were made by The Bezos Earth Fund (USD 22.8 million), Climate Asset Management (USD 200 million), Masdar (USD 10 billion) and Camco (USD 100 million). The summit also highlighted the importance of accountability and transparency in pursuing a just and equitable transition and the need for countries that have contributed the most to climate change to lead in financing and implementing climate action. The summit also highlighted that the benefits of climate action are shared equitably so that no one is left behind.

4.5.5. Nairobi Declaration

Some of the key points that are mentioned in the Nairobi Declaration pertinent to energy transition are mentioned below:

11. The Declaration Recalled that only seven years remained to achieve the SDGs of the 2030 Agenda and noted with concern that 600 million people in Africa still lacked access to electricity while about 970 million lacked access to clean cooking.

14. It expressed concern that despite Africa having an estimated 40 per cent of the world's renewable energy resources, only $60 billion or two per cent of US$3 trillion renewable energy investments in the last decade had come to Africa.

In recognition of the scale, urgency and importance of these collective actions, the Declaration committed to:

23. Developing and implementing policies, regulations and incentives to attract local, regional and global investment in green growth, including green and circular economies.

25. Focusing its economic development plans on climate-positive growth, including expansion of just energy transitions and renewable energy generation for industrial activity, climate-smart and restorative agricultural practices, and essential protection and enhancement of nature and biodiversity;

26. It promoted clean cooking technologies and initiatives as a just energy transition and gender equality for African rural women, youth, and children.

27. It Strengthened actions to halt and reverse biodiversity loss, deforestation, and desertification, restore degraded lands to achieve land degradation neutrality, and implement the Abidjan declaration on achieving gender equality for successful land restoration.

Call for action

53. The Declaration Noted that multilateral finance reform was necessary but not sufficient to provide the scale of climate financing the world needs to achieve 43 percent emission reduction by 2030 required to meet the Paris Agreement goals, without which keeping global warming to 1.5 degrees Celsius will be in serious jeopardy.

57. It urged world leaders to consider the proposal for a global carbon taxation regime, including a carbon tax on fossil fuel trade, maritime transport and aviation, that might also be augmented by a global financial transaction tax (FTT) to provide dedicated, affordable, and accessible finance for climate-positive investments at scale, and establish a balanced, fair and representative global governance structure for its management, with an assessment of the financial implications on socioeconomic impacts on Africa.

4.5.6. Conclusion on energy transition

The conclusion is that the current and prospective oil and gas-producing countries' governments must factor in the risk that their oil and gas products might not become commercially viable. As SAIs, auditors should, at a minimum, expect that the governments should have made realistic revenue projections. Countries with substantial oil, gas and mineral reserves should also plan long-term to diversify their economies. Too much reliance on a few commodities will be a burden in the end. Even though we have seen recent spikes in commodity prices, especially oil and gas, the long-term trend is clear: fossil fuels must be gradually phased out to tackle climate change. On the other hand, energy transition also creates opportunities for the mining sector due to increased demand for energy transition minerals, such as copper, aluminium, lithium, nickel, cobalt, manganese and graphite that are used in EV-batteries, solar power and windmills. According to IEA[114], demand for these minerals will grow quickly as green energy gathers pace.

[114] The Role of Critical Minerals in Clean Energy Transitions – Analysis - IEA

4.5.7. High-level considerations

- What policies are in place to ensure the country does not become too dependent on EI revenue sources?
- What revenue projections have the Ministry of Finance, or similar, done to consider that the development and production of oil and/or gas may give a negative rate of return because of the global energy shift?
- Is there sufficient awareness about the critical minerals and the increased demand for them because of the energy transition?
- Have the communities been consulted early on transition minerals projects, and have the companies considered the community's concerns before starting the projects?
- Is the government addressing governance and corruption risks in transition mineral strategies? Due consideration should be given to governance and anti-corruption safeguards. Government strategies should include plans for identifying and mitigating risks in areas such as licensing and contracting, procurement, state participation and commodity trading via mechanisms like contract, payment and beneficial ownership transparency.
- Is there a clear justification for using 'fast-tracked' licence award processes for the transition minerals?
- Auditors should review awards processes to check for corruption risks, especially when 'fast-tracked' procedures are used.
    - Where governments deviate from normal licensing procedures to expedite awards, they should commit to disclosing the rationale for doing so, as well as details on the procedures and criteria used and the outcomes of the process.
- Has sufficient time and resources been allocated for conducting due diligence checks in awards processes?
- To support these efforts, governments should maintain a public register of beneficial ownership information and use this data to inform checks for conflicts of interest and corruption risks, particularly when 'fast-tracked' procedures are used. Apart from licensing and contracting, strict due diligence checks should also be carried out to award other business opportunities, for example, in SOE procurement processes and commodity trading deals.
- Auditors may consider extracting audit criteria from the Nairobi Declaration in compliance and performance audits to assess whether governments, ministries and agencies comply with the commitments made in the declaration.

Annexures

Annexure 1: Background on the extractive industry sector

This annexure provides a detailed background on the main features of the oil and gas and solid mineral mining environment. Through extensive research, the annexure gives both current and futuristic perspectives of developments in the industry by citing various examples from the African continent. The annexure also covers the issue of artisanal mining.

Overview of the petroleum and gas industry[115]

Africa's oil and gas industry continues to grow substantially, with new hydrocarbon provinces developing significantly. Large gas finds in Mozambique and Tanzania have caused the world to take note of East Africa as an emerging player in the global industry. According to PwC (2017),[116] Africa has proven natural gas reserves of 502 trillion cubic feet (Tcf), with ninety per cent of the continent's annual natural gas production of 6.5 Tcf coming from Nigeria, Libya, Algeria and Egypt. The African oil and gas industry continues to play catch-up with the rest of the world. Despite the industry's potential, several challenges still hamstring Africa's oil and gas industry from flourishing.

While some are industry-generic challenges, most are geopolitically driven. The internationally sustained low oil price means organisations must manage costs/spending efficiently. This is more important as we see capex increases return in the oil and gas industry. Such severe cost-cutting regimes pose challenges to the auditors as they are red-flag areas for accounting fraud and error.

Although the industry and its leaders have been viewed as laggards to change over the years, recently, the oil and gas industry has not been spared the upheavals of disruptive technology. In a changing competitive landscape driven by alternative fuels, technology, cost-cutting and partnerships, oil and gas companies need to review their strategic portfolio of activities to ensure appropriate positioning as the competitive landscape changes. For the auditor, this requires more audit focus on the ongoing concern of some of these oil companies, as the efficiency and sustainability of some business models are being challenged. The cost per barrel of crude oil is quoted in US$, while the functional and reporting currencies of most oil and gas companies in Africa are in their local currency. With financing costs, foreign currency and currency devaluation continuing as key issues for the industry in the African

[115] https://www.pwc.co.za/en/assets/pdf/africa-oil-and-gas-review-2018.pdf
[116] PwC – South Africa 2017 Oil & Gas Africa Report

context, organisations should consider developing more sophisticated finance capabilities. This inevitably makes the financial reporting process more complex for the auditors, offering a breeding ground for fraud and corruption. As corruption continues to be a key industry factor, entities must ensure that strong, ethical leadership drives the right behaviours across organisations.

In emerging petroleum- and gas-producing countries, there is an ongoing process to consolidate and design management of the petroleum sector. This is a difficult and often controversial process, creating conflicts between different interest groups and even increasing uneven levels of power and resources among stakeholders. This process calls for a new legislative framework, such as a Petroleum Act, establishing new agencies, and acquiring new technologies and competence. SAIs can potentially play a critical role in ensuring that the extraction process follows internationally accepted best practices and that the resources are being used for the public good.

Overview of the mining sector

Depending on how well mining policies and frameworks are developed, the mining sector will be biased toward either exerting a positive or a negative influence on development in countries with mineral resources. Depending on natural resource abundance, industry development and market conditions, revenues from the extraction of minerals can make up a large portion of a national or regional economy. In Sierra Leone and Mozambique, for example, the value of mining production in 2014 was approximately fifty-four per cent and thirty-eight per cent of the national GDP, respectively.[117]

Mining can provide the government with budgetary resources necessary for poverty reduction programmes, which could be significant catalysts for further private sector development in the region or country. Mining is likely to contribute to the development of the economy of any country through taxes from large-scale mining companies that contribute to socioeconomic infrastructural development within the area where the mine is located, thus creating employment opportunities both directly in the mines and indirectly through services to the mines; improving human capital through the provision of education and health services; increasing foreign exchange reserves (reducing foreign exchange deficit); improving infrastructure such as roads and water supply; and creating other economic activities to support the mines instead of importing all supplies from abroad.

On the other hand, the supply of metals and minerals is not without environmental and social costs. The effects of mining continue long after the mine has stopped operating. Poor mining and mineral processing practices can poison the air, land and water and then leave the environment to suffer a slow

[117] CAAF Guide to Auditing Mining Revenues and Financial Assurances for Site Remediation, July 2017

death. Many rivers have been pronounced “biologically dead” due to the release of mine tailings (waste from the mine containing rocks, metals and poisons) into lakes and waterways. The minerals sector also lacks transparency and corruption, which, if not well managed, can be detrimental to any country.

Artisanal mining

Artisanal mining refers to mining by individuals, groups, families or cooperatives with minimal or no mechanisation, often in the informal sector of the market. About 100 million people – workers and their families – depend on artisanal mining, compared to about seven million people worldwide in industrial mining. The sector employs over 40 million globally – with ten million living in Sub-Saharan Africa.[118] Artisanal mining activities can severely impact social, physical and ecological environments. This type of mining often has serious environmental consequences, especially gold mining, due to using mercury and cyanide without protective gear. In addition, the artisanal miners risk falling into unprotected pits, leading to many injuries and deaths. Small-scale mining also comes with problems associated with ‘unplanned gold rush villages’, including an almost complete lack of sanitation, clean water, education and medical care.

Box 8 - Case example: Monitoring Fish and Human Exposure to Mercury due to Gold Mining in the Lake Victoria Goldfield, Tanzania

According to a study carried out by the University of Dar es Salaam in Tanzania, it is estimated that about 250,000 people are involved in small-scale gold mining in three principal gold fields, namely the Lake Victoria goldfields around Lake Victoria.[119] There is a potential risk of human exposure to inorganic mercury because of the extensive use of mercury in gold recovery in the Tanzanian goldfields. Furthermore, inorganic mercury released into river systems during gold ore processing will likely be gradually transformed into a highly toxic form of methyl mercury and concentrated through bio magnifications in aquatic food chains, particularly fish.

High-level audit considerations on artisanal mining

SAIs should conduct audits to establish whether:

i. The government has laws and regulations in place to govern the operations of artisanal mining.
ii. Relevant ministries and government agencies ensure that artisanal miners comply with laws and regulations on artisanal mining, where this legal framework has been set up.
iii. The government is taking action on artisanal miners concerning pollution of waterways through mercury use, dam construction, a build-up of silt, poor sanitation and effluent dumped in rivers.

[118] Shining a light on a hidden sector (worldbank.org)
[119] WGEA Mining Guide, 2010

iv. The government has acted to reduce the risks to which artisanal miners are exposed, such as using mercury and cyanide in gold extraction and working without the required personal protective equipment.

v. Abandoned mines are being rehabilitated, as many artisanal miners have lost their lives while mining in old mines that have been left open due to improper mine closure and lack of reclamation.

In the case of environmental audits of artisanal mining where there are no laws and regulations to uphold mining operations, the auditor in carrying out such audits is expected to apply criteria like estimated environmental costs, liabilities and risks associated with artisans' mining sites, systems of establishing priorities and management of mines opened by artisans, comprehensive plans for legalisation through registering the artisans and issuing them with licences in order to adhere to environmental laws and regulations.

The future of the mining sector

According to the international study group report on Africa's mineral regimes, Africa is well endowed with mineral resources and has a long mining history. However, Africa has not reaped these resources' developmental benefits. This is largely due to the weak integration of Africa's mining sector into national economic and social activities.

The African Union (AU) heads of state and government have taken deliberate steps to address this weakness. This has been done through the endorsement of the Africa Mining Vision (AMV) and the establishment of the African Minerals Development Centre (AMDC) to provide strategic operational support for the vision and its action plan. The Africa Mining Vision was adopted by heads of state at the February 2009 AU summit following the October 2008 meeting of African ministers responsible for mineral resource development. It is Africa's own response to addressing the paradox of great mineral wealth existing side by side with pervasive poverty.[120]

The AMV advocates thinking outside the 'mining box'. Accordingly, it is not just a question of improving mining regimes by ensuring that tax revenues from mining are optimised and that the income is well spent – although that is important. Integrating mining much better into local, national and regional development policies is a question. That entails thinking about how mining can contribute better to local development by ensuring that workers and communities benefit from large-scale industrial mining and

[120] http://www.africaminingvision.org/

protecting their environment. It also means ensuring that nations can negotiate contracts with mining multinationals that generate fair resource rents and stipulate local inputs for operations. It means integrating mining into industrial and trade policy at the regional level.

The African Mining Vision action plan was developed in December 2011. The action plan comprised nine programme clusters of activities constructed around the key pillars of the vision. These are mineral rents and management, geological and mining formation systems, building human and institutional capacities, artisanal and small-scale mining, mineral sector governance, research and development, environmental and social issues linkages and diversification. Auditors can find more information on the activities involved in the nine programme clusters at http://www.africaminingvision.org/.

Most importantly, it ensures that Africa can move from its historic status as an exporter of cheap raw materials to a manufacturer and supplier of knowledge-based services. It is therefore expected that through the implementation of the African Mining Vision action plan by the AMDC, African countries will begin reaping impactful developmental benefits from resources in their countries soon. A SAI can conduct performance audits to establish the AMV action plan's implementation level. This is also an area where SAIs can consider conducting collaborative audits, as many African countries are expected to implement the action plan.

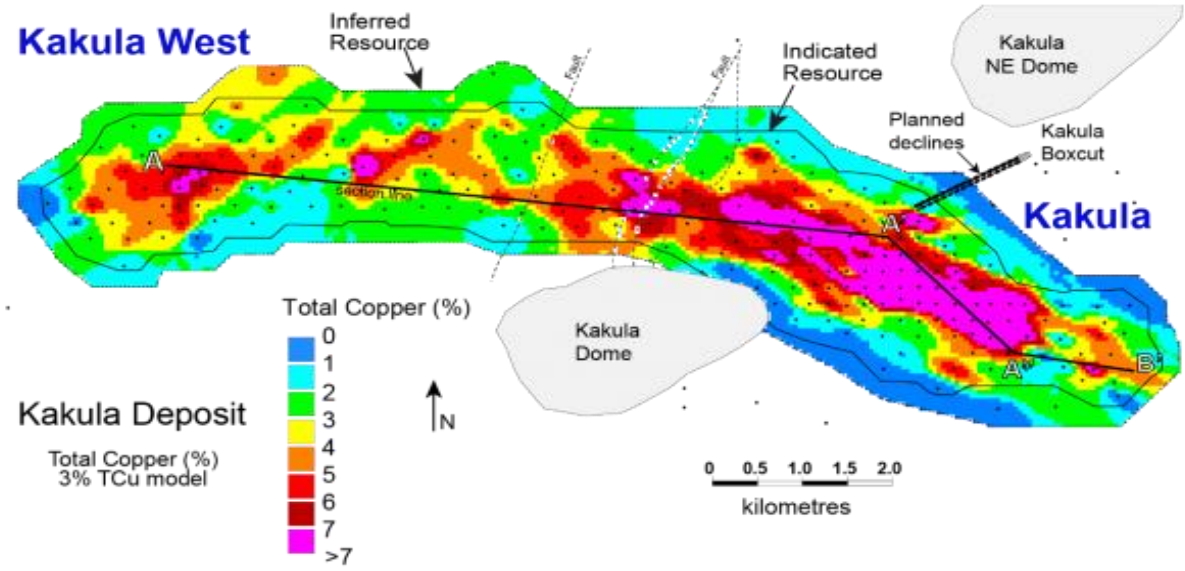
The case of Africa's largest copper discovery in the Democratic Republic of the Congo

According to international mining consultant Wood Mackenzie, the Kamoa-Kakula Copper Project in the Democratic Republic of the Congo is regarded as Africa's largest, high-grade copper discovery and the world's biggest, undeveloped, high-grade copper discovery with an indicated resource of approximately 740 Mt. The deposit is located within the Central African Copper Belt and forms part of the interpreted extension of the Western Foreland unit of northwestern Zambia.[121]

Kakula and Kakula West discovery areas indicate mineral resource block grades.

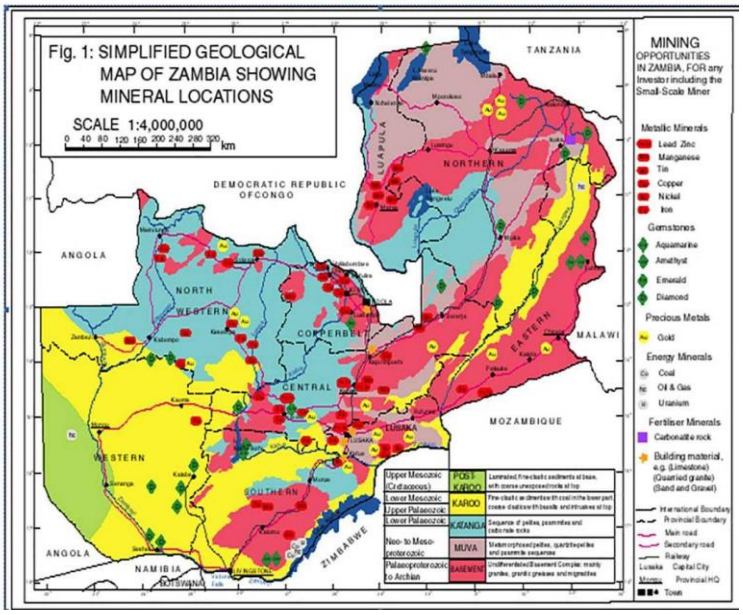
The copper discovery is expected to have an impact on the economy of the Democratic Republic of the Congo. The SAI has a role to play right from this early stage to ensure that the resource is well managed and that the country gets developmental benefits from the mineral resource.

[121] https://www.wallstreet-online.de
http://www.miningweekly.com/
http://www.ivanhoemines.com



Box 9 - Case study: Current Mineral Deposits in Zambia

Zambia's mining industry is doing well, and it is endowed with natural resources. If the global demand persists and commodity prices remain buoyant Zambia's mines could generate significant revenue for the government and the citizens. The mining industry would not just provide a huge tax boost to the national government's coffers, but it would also be pumping huge amounts into local communities. At last the promises of the government and companies would be fulfilled and people would start to see the benefits of mining as their living standards begin to improve.



Despite Zambia being ranked seventh globally in copper production, communities continue to suffer from abject poverty and a miserable quality of life with little access to essential services and even less hope.[122]

[122] Open Society Initiative for Southern Africa (OSISA) 2013

Annexure 2: Key regional and international initiatives in the EI sector

2 a) Natural Resource Governance Institute (NRGI)

The NRGI is a non-profit organisation established to help countries realise the benefits of their oil, gas and minerals endowments. The NRGI offers technical advice, advocacy, applied research, policy analysis and capacity development. The NRGI works with innovative agents of change within government ministries, civil society, the media, legislatures, the private sector and international institutions to promote accountable and effective governance in EI.

Priority countries for the NRGI include Colombia, the Democratic Republic of the Congo, Ghana, Guinea, Indonesia, Mexico, Mongolia, Myanmar, Nigeria, Tanzania and Tunisia. In addition, the NRGI has limited engagement in Azerbaijan, Bolivia, Kyrgyz Republic, Libya, Peru, Philippines, Uganda, Ukraine and Zambia.

Natural Resource Charter

The Natural Resource Charter is a set of principles offering policy options and practical advice for governments, societies, and the international community on managing natural resources for sustainable development. The Natural Resource Charter is not a precise prescription. Instead, it addresses the ingredients successful countries have used.

The charter focuses on the entire decision-making chain, starting from the discovery of the natural resource, the decision to extract, the awarding of contracts and licences, managing the revenue and the development of sustainable policies for the country's development. The charter consists of twelve precepts divided into three groups: domestic foundations for resource governance, the chain of economic decisions required to manage resources for prosperity, and the international foundations for resource governance.

The first group emphasises establishing a strategy, guiding principles, rules and institutions about all the processes in resource management, as well as the importance of accountability and transparency.

The second group addresses key government decision areas in ensuring that resource wealth's value is translated into sustained prosperity for citizens. Lastly, the third group addresses the role of international actors: extractive companies and those responsible for international governance.

The charter has also been translated into a Natural Resource Charter Benchmarking Framework, a tool for benchmarking a country’s oil, gas and minerals management against global best practices.

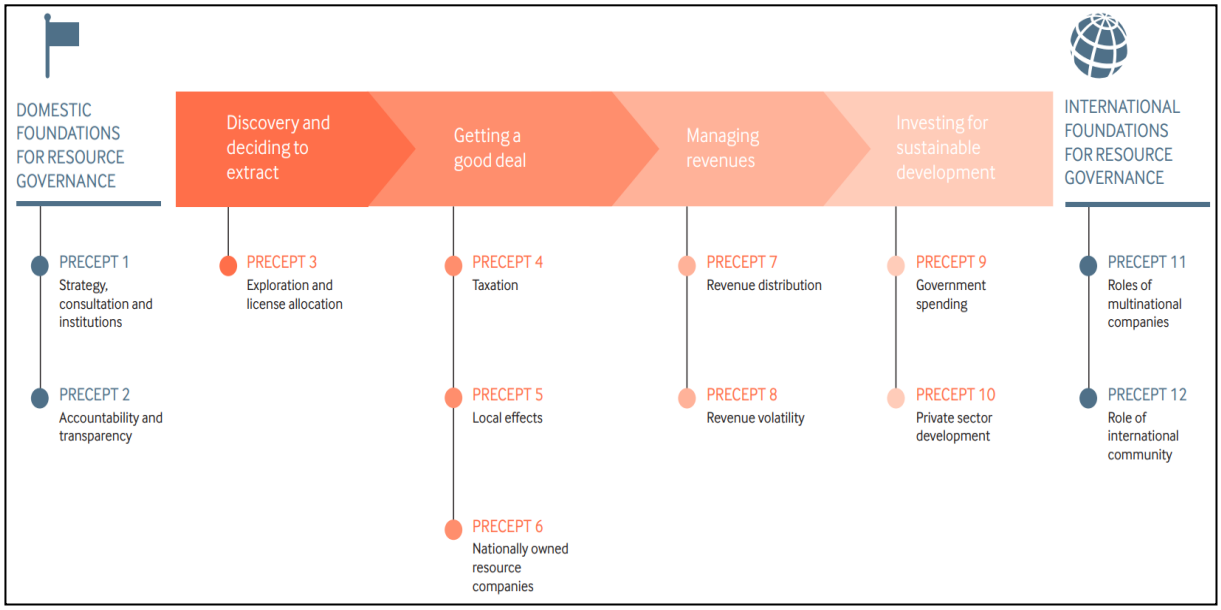


Figure 22: Natural resource charter

Resource Governance Index (RGI)

The RGI, developed by the NRGI, measures the quality of governance in eighty-one resource-producing countries' oil and gas mining sectors. The index is currently the only international index dedicated to resource governance. The RGI can be useful for evidence-based policy-making by governments and parliaments and evidence-based policy advocacy by civil society.

The RGI is a composite score based on assessments across three components: value realisation, revenue management and the enabling environment component. *Value realisation* covers the governance of allocating extraction rights, exploration, production, environmental protection, revenue collection and SOEs. *Revenue management* deals with national budgeting, subnational resource revenue sharing and sovereign wealth funds. Lastly, the third component measures a country's *enabling environment*. Findings on resource governance indices show that sixty-six of the eighty-one countries assessed, i.e., over eighty per cent of the countries, exhibit weak, poor, or failing governance. Consequently, less than twenty per cent of the countries achieved an overall rating of satisfactory or above.

Resources

The NRGI provides relevant resources related to the governance of EI. Their offerings include various publications, tools, training and courses. Some of these can be accessed through their website at https://resourcegovernance.org/ The NRGI has developed the following free online courses:

- Natural Resource for Sustainable Development: The Fundamentals of Oil, Gas, and Mining Governance
- Interactive course: Petronia

2 b) INTOSAI Working Group on the Audit of Extractive Industries (WGEI)

In the INTOSAI community, the Working Group on the Audit of Extractive Industries was established in 2013 to facilitate knowledge sharing and networking for SAIs related to the audit of the EI sector to promote good governance and sustainable development in the EI. The scope of the working group includes oil, gas and solid minerals. The WGEI comprises forty-six members and is chaired by SAI Uganda since 2014. Through the website, the WGEI provides tools and resources related to EI. These include audit reports on oil, gas and mining, research papers, audit guidelines and manuals, newsletters and links to other resources.

2 c) Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF)

IGF[123] supports its more than eighty member countries in advancing their SDGs through effective laws, policies, and regulations for the mining sector. It helps governments take action to develop inclusive and gender-equitable practices, optimise financial benefits, support livelihoods, and safeguard the environment. IGF's work covers the entire mining life cycle, from exploration to mine closure and projects of all sizes, from artisanal mining to large-scale operations. Guided by their members' needs, IGF provides in-country assessments, capacity building, technical training, publications, and events to advance best practices, peer learning, and industry and civil society engagement.

2 d) International Council for Mining and Metals (ICMM)

ICMM is a unique industry body for mining and metals. ICMM brings together a third of the global metals and mining industry and key partners to drive leadership, action and innovation for a safe, just and sustainable world. ICMM members (25 major mining companies and forty association members) recognise their active role in creating a safer and more sustainable mining and metals industry. Through their commitments, company members work together alongside governments and local communities to improve the quality of life beyond providing the minerals and metals that sustain modern living. All company members are represented on ICMM's Council by their CEOs and on various committees by nominated representatives.

[123] Home - Intergovernmental Forum (igfmining.org)

ICMM's Mining Principles respond to evolving societal expectations of the mining and metals industry. ICMM's Mining Principles define the company members' good practice environmental, social and governance[124] requirements through a comprehensive set of thirty-nine performance expectations and nine related position statements on several critical industry challenges. Implementing the Mining Principles will support progress towards the global targets of the UN SDGs and the Paris Agreement on climate change. Incorporating robust site-level validation of performance expectations and credible assurance of corporate sustainability reports, ICMM's Mining Principles seek to maximise the industry's benefits to host communities while minimising negative impacts to manage issues of concern to society effectively.

2 e) Extractive Industries Transparency Initiative (EITI)

The EITI is the global standard for promoting transparency, accountability and good governance in countries rich in oil, gas and mineral resources. The EITI Standard requires the disclosure of information along the extractive industry value chain, from how extraction rights are awarded to how revenues make their way through the government and benefit the public. The Standard requires EI companies to publish what they pay to governments and for governments to disclose what they receive, which largely includes taxes, royalties and other statutory payments. The implementation of the EITI Standard takes place at the country level. As of March 2019, and beyond, fifty-two countries are implementing the EITI Standard, wherein twenty-four are African countries.[125]

The initiative emerged to mitigate the outcomes of low per capita growth, slow progress on human development, and social and political instability common to resource-rich developing countries. The EITI expects that improving financial transparency in these transactions will assist with minimising corruption and better accountability in resource economies. Transparency is expected to provide a significant improvement in accountability and governance. The quality of governance is a significant factor in determining whether natural resource wealth brings long-term sustainable benefits.

The EITI process

The EITI process aims to see results from the natural resources that transform to benefit the people. The EITI process in a country is a government-led initiative that requires the government of each resource-rich country that wants to implement the EITI to declare its intention publicly[126]. The

[124] ICMM - Our Principles
[125] EITI in Africa 2018
[126] The EITI Standard 2016 – Requirement 1.1a

government must create an environment for civil society and the EI companies to engage in the EITI process fully and effectively with active support from other stakeholders such as investors and international organisations. The government is required to commit to working with civil society and companies and establish a multistakeholder group (MSG) to oversee the implementation of the EITI. The MSG in each implementing country acts as a governing board (government, industry, CSOs) to systematically review, assess and report on what is being paid by companies and received by governments from EI operations. The key functions of the MSG include:

- Setting the strategic direction of the initiative.
- Defining the reporting scope of the initiative in each country.
- Developing the national EITI work plan and conducting the reconciliation process.[127]
- Reviewing the outcome and impact of EITI implementation on natural resource governance and publishing annual progress reports.
- Defining "materiality" by top companies, jurisdiction, payment type, threshold and reporting government entity.

Below is an illustration depicting how the EITI works in three steps:

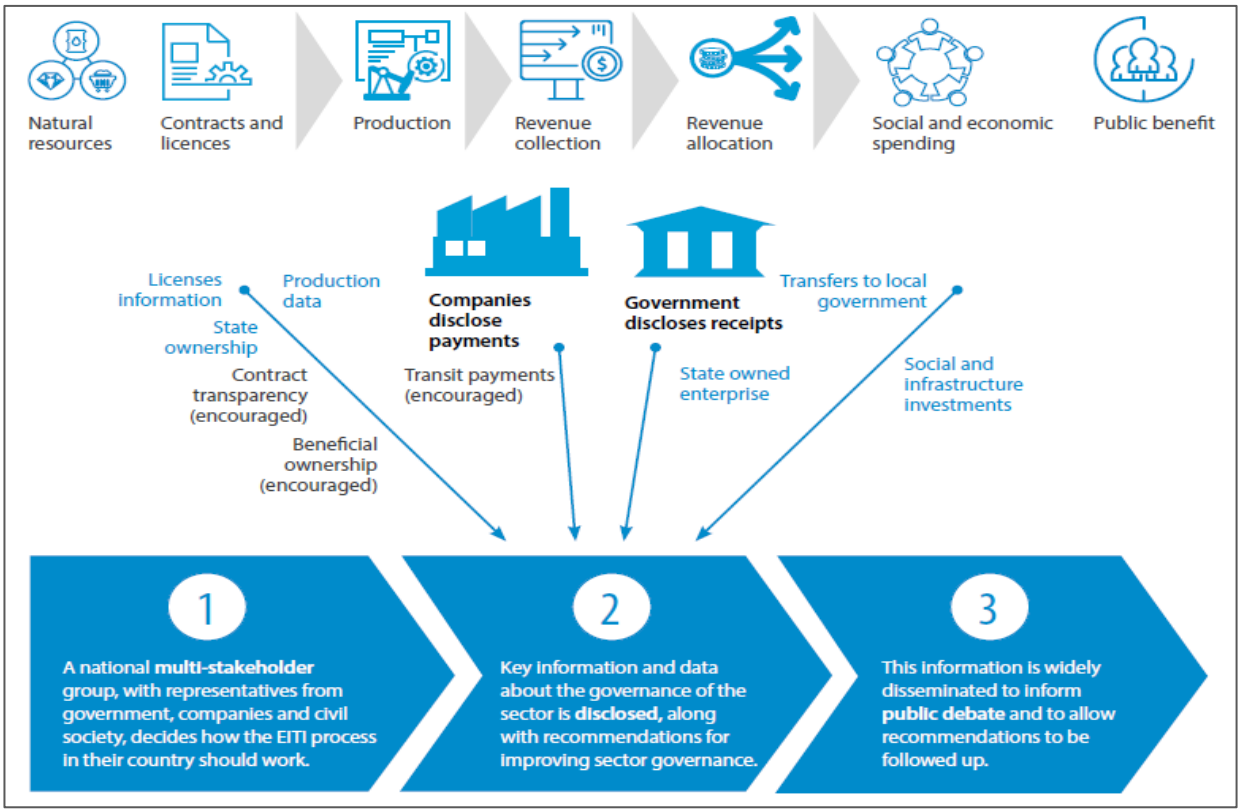


Figure 23: Source: [EITI Progress Report 2018]

[127] www.treasury.gov.pg

Benefits of implementing the EITI

The EITI aims to minimise corruption and maximise the accountability of oil, gas and mining companies at national and local levels. It provides a voluntary standard promoting and supporting improved governance in resource-rich countries through full publication and verification of company payments and government revenues from oil, gas and mining operations. A robust and flexible methodology supports it to ensure that the standard is maintained in all implementing countries. It is expected to result in improved management of resource revenue. Benefits for implementing countries include mitigation of political risk. The EITI improves the investment climate by providing confidence and clear signals to investors and international financial institutions. The EITI is committed to reform, anti-corruption and good governance, improving tax collection and international standing, and enhancing trust and stability.[128] In summary:

- The EITI process provides more complete financial information on companies and countries.
- The EITI informs country ratings and investments.
- The EITI establishes forums for discussion and reforms.
- The EITI improves the investor's reputation.

Relevance of the EITI to the SAI[129]

The EITI process and reporting provide the following benefits to the SAI's auditors:

- Easy access to information: The EITI process provides alternative ways of accessing company documents. Auditors do not normally conduct direct audits of EI companies; their information can be sought through the national EITI secretariat.
- EITI Identifies discrepancies and recommendations that the EI auditors can use for planning (risk assessment).
- It encourages companies to disclose their beneficial ownership, which is especially useful in assessing TP issues. A beneficial owner in a company means the natural person(s) who directly or indirectly ultimately owns or controls the corporate entity. Ownership threshold(s) reporting obligations for PEPs and publicly listed companies, including wholly owned subsidiaries, should be disclosed[130.] This information may be difficult to access through the normal audit process.

[128] The EITI Standard 2016
[129] The EITI Standards 2016
[130] EITI Standards 2016- Requirement (2.5)

- It enhances openness in reporting. Implementing countries are required to produce their first EITI report within 18 months of being admitted as an EITI candidate. After that, implementing countries are expected to produce EITI Reports annually.[131]

SAI's responsibilities to the EITI process

The EITI Standard requires assessing whether payments and revenues are subject to credible, independent audits, applying international auditing standards. [132] In fulfilling this important requirement, SAIs must ensure that the figures reported by government entities (national and subnational) are free from fraud and error. In this regard, SAI must audit all public sector entities responsible for receiving revenues from the EI, based on international auditing standards (ISSAIs).

In many African EITI-implementing countries, the MSGs, through the national secretariat, collect reporting (disclosure) templates from government entities and companies. The disclosures of the government entities are sent to the SAIs for certification, while the EI companies' disclosures are sent to their private auditors for certification. The MSG then appoints independent administrators who reconcile the government receipts and the companies' payments[133].

High-level considerations

- The SAI plays an important role in the verification of the payments from EI reported by government entities.
- The SAI may use the EITI reports to gather essential information on the country's extractive industry and to understand the flow of EI revenues better, thereby attaining a holistic overview of the EI sector.
- **The MSG selects the names of the government entities (national and subnational)** for reporting purposes. The MSG is responsible for selecting the MDAs that should report for EITI purposes, whether central or local government entities. The auditor should determine the MDAs that report for EITI purposes. This information is useful to the auditor, especially in planning.
- **The scope/period of the EITI report**: Auditors should consider the timeliness of receipt of revenues from the EI companies by government entities. The report is done for a financial year and on a cash basis. The date of application, date of award and duration of the licence are

[131] EITI Standards 2016- Requirement (4.8)
[132] EITI Standards 2016- Requirement 4.9(a)
[133] EITI Standards 2016- Requirement 4.9(b)

relevant factors to ensure that only receipts for that year are reconciled with the payments made by the companies in the same year.

- **SAI auditors can use the identified discrepancies and recommendations in the EITI report** in their audit planning and risk assessment.
- **The names of the EI companies selected by the MSG for reporting purposes**. The auditor needs to know the names of the EI companies selected by the MSG for reconciliation. This information will help the auditor to know which companies' payments were reconciled with government receipts.
- **The materiality level set for reporting purposes**: Materiality is an important concept and tool in auditing. Therefore, the auditors should know the materiality level set for the reconciliation and compare it with their materiality to help them plan the audit properly.
- **The individual licences and contracts** for which revenues were received from the EI companies. EI companies sometimes obtain and maintain more than one operational licence. The auditor should understand the different licences and contracts included in the reconciliation, the ones not included and the reasons for their exclusion.
- **The amount paid per licence or contract agreement**. The auditor should consider the amount paid by the EI companies to the government entities for each licence or contract held during the year under review. This information will help the auditor to get complete knowledge of the revenues received from the EI sector.
- **The types of revenues received from each company** - verifying the EI revenues reported by the government. Government entities receive various forms of revenue from the EI sector, such as royalty, corporation tax, surface rent, export duty, signature bonuses, training fees, application fees, etc. It all depends on the resources available to the country and the extractive activity. The auditor needs to fully understand all the types of revenues received from the EI companies.
- **The number of revenues received by each government entity.** The EITI reconciliation reports disaggregate revenues reported by government entities. This information will help the auditor to understand the entities in extractive industry revenues collected for the year under review.
- **The type of commodity:** The company carries out exploration, production, or other activities in the country. A country may have more than one extractive resource, and some EI companies may engage in the exploration for or extraction of (minerals, oil or gas). Therefore, the auditor should know the resources/commodities the companies carry on EI activities.
- **The total production volumes and the value of production by commodity** and, when relevant, by state/region. This could include sources of the production data and information on how the production volumes and values disclosed in the EITI report have been calculated.

- **The type of work the company carries out in the sector** (exploration, production, exporting, refinery, etc.). The auditor needs to know the work the companies are licensed to undertake in the sector, whether in the mining or oil and gas sectors, whether it be reconnaissance, exploration, production, exporting, etc.
- **The size or scale of the extractive company**. In the mining sector, it is also necessary for the auditor to know the size or scale of the extractive company. He/she needs to know whether it is a large-scale company, a small-scale company or an artisan miner. This information is important because various rates or fees are charged depending on the company's scale.
- **The level of ownership of Government and SOEs in the EI companies**. The EITI requires disclosures from the government and SOEs concerning their level of ownership in mining, oil and gas companies operating within the country's oil, gas and mining sector, including those held by SOE subsidiaries and joint ventures, as well as any changes in the level of ownership during the reporting period.

Box 10 - Case example: Sierra Leone on the Implementation of the EITI Process

The Sierra Leone Extractive Industries Transparency Initiative (SLEITI), like all other national EITI organisations, has a tripartite composition, i.e., government representatives, CSOs and the EI companies' representatives that form the MSG. The SLEITI Secretariat is headed by the EITI National Coordinator and is supported by other administrative staff. Each government institution with role/responsibilities in the extractive sector nominates two staff (one substantive and an alternate) representing the institution in the MSG. SAI Sierra Leone (also called ASSL) is one of the government institutions in the MSG because of its mandate to audit these government institutions.

The MSG also has sub-committees, and one of them is the technical committee. It comprises MSG members with strong audit, accounting/finance, geological, Civil Society and EI company backgrounds. Its main responsibilities, among others, are reviewing the annual work plan of the secretariat, setting materiality level (minimum amount and type of commodity, revenue stream, etc.) for reporting by government entities and companies, designing the reporting templates, selecting government entities and EI companies that should report, appointing/recruiting an independent reconciler/administrator, reviewing reconciliation reports, following up recommendations on the reconciliation reports, and reviewing validation reports.

The ASSL's representative is a member of the technical committee. This committee relies greatly on the ASSL's representative to provide professional guidance/advice. The committee also performs pre-reconciliation (mock test or dry run) of the collected data.

Apart from the general participation of ASSL at MSG, it is responsible for certifying the data (reporting templates) submitted by the government entities as a requirement of the EITI Standard. ASSL undertakes this responsibility based on its audits of these institutions. For government institutions yet to be audited before

the templates' certification and reconciliation, ASSL normally requests additional evidence to support the information reported by the entities for the year under review.

If a reporting template(s) is not certified by ASSL, the reason for not certifying that template(s) will be stated in its report to the secretariat. The secretariat will communicate this information to the government entity, and the entity will make a frantic effort to provide additional evidence. If sufficient evidence is not provided, ASSL will not certify the reporting template(s). ASSL uses this report in subsequent audit planning and follow-up activities.

The independent administrator who prepares the SLEITI Reconciliation report contacts the ASSL during the reconciliation process to confirm its procedures for certifying the reporting templates. Similarly, the validator of the SLEITI process contacts/requests ASSL to confirm the procedures used to certify the reporting templates submitted by the government entities and explain its participation in the MSG. ASSL normally provides this confirmation in writing.

ASSL also seeks information from the SLETI Secretariat through meetings or in writing, especially at the planning stage of an EI audit. For instance, when ASSL wanted to audit surface rent paid by mining companies through government institutions and the Audit of Mining Royalties, meetings and interviews were held with the SLEITI National Coordinator to obtain relevant information for planning. ASSL also invited the SLEITI National Coordinator to participate in the auditor's in-house EI audit workshops to view information sharing in the sector. Their presence in these workshops provided extremely useful information to the EI audit team.

ASSL and SLEITI are always willing to share information and cooperate. This has supported both institutions' work in the EI sector. This collaboration and cooperation between ASSL and SLEITI and the role of ASSL as an MSG member of SLEITI is a strong pillar of the EITI implementation process in Sierra Leone. It enhanced the success of SLEITI in attaining an EITI-compliant status in 2013. In launching the SLEITI Reconciliation report in 2013, the former Head of State of Sierra Leone acknowledged the role of ASSL in supporting the EITI Process in Sierra Leone.

Annexure 3: Mapping the SDGs and Agenda 2063 to the extractive industries

The matrix[134] below illustrates how the 17 SDGs and Agenda 2063 issues can be addressed through EI.

Table 13: Mapping SDGs and Agenda 2063

SDG	Agenda 2063	Extraction industry issues
1 – No Poverty	1- A high standard of living, quality of life and well-being for all citizens	EI should invest in local development by providing incomes, jobs and decent work, focusing on high economic growth resulting in better quality of life and well-being for all citizens. They can increase access to affordable energy, ensure sustainable natural resource management, and reduce vulnerability and exposure to climate change events and natural disasters.
	7- Environmentally sustainable and climate-resilient economies and communities	
2 – Zero hunger	1- A high standard of living, quality of life and well-being for all citizens	EI should collaborate with the local and neighbouring communities and farmers on land and freshwater use, fisheries, forests and biodiversity resources, focusing on sustainable use of natural resources. Integrated planning and management of land resources for sustainable agricultural development and production is vital for alleviating hunger. Sharing EI infrastructure with local communities contributes to the well-being of communities. Extractive industries should provide local employment and invest in local development towards transforming economies. EI should contribute knowledge to improving energy efficiency and reducing GHG emissions in their value chain.
	3- Healthy and well-nourished citizens	
	4- Transformed economies	
	5- Modern agriculture for increased productivity and production	
	7- Environmentally sustainable and climate-resilient economies and communities	
	8- United Africa (federal or confederate)	
3 – Good health and well-being	3- Healthy and well-nourished citizens	EI can conduct health impact assessments to strengthen their capacity to manage health and occupational risks.
	7- Environmentally sustainable and climate-	

[134] The matrix draws from a project originated by the UNDP, IFC, IPIECA, and the Columbia Centre on Sustainable Investment (CCSI). The development of this mapping benefited significantly from the input and review of many AFROSAI-E stakeholders.

SDG	Agenda 2063	Extraction industry issues
	resilient economies and communities	It is also important for EI to protect workers and community members against infectious diseases and non-communicable diseases. They can also implement programmes on mental health and substance abuse. Designing programmes with benefits for employees is important. Extraction industries should also prevent and mitigate the health impacts of air emissions and effluent discharges and improve road safety. EI endorses full gender equality with all health and well-being issues.
	17- Full gender equality in all spheres of life	
4 – Quality Education	1- A high standard of living, quality of life and well-being for all citizens	EI should establish a company strategy for local content to promote sustainable development by focusing on the entire value chain, especially regarding skills that are most needed and in short supply. Investment should be in workforce education, training and technical programmes by mapping existing capabilities and then assessing gaps, e.g., in-house training programmes focusing on technical and soft skills for locals. They can also offer scholarships/bursaries for studying towards formal qualifications. Promoting awareness and understanding of energy efficiency, environmental management, health/wellness, and safety issues is critical, as empowering individuals with knowledge assists them to make better decisions. Supporting local schools (adopting a school) is important for creating awareness and educating the youth, especially regarding science, technology and innovation. Engaging and empowering youth, children, and communities is essential.
	2- Well-educated citizens and a skills revolution underpinned by science, technology and innovation	
	16- The African Cultural Renaissance is pre-eminent	
	17- Full gender equality in all spheres of life	
	18- Engaged and empowered youth and children	
5 – Gender equality	3- Healthy and well-nourished citizens	EI can help to reduce discrimination and promote women's participation in industry opportunities by producing local content policies that are gender sensitive and do not create any inequalities. There should be support for the full and effective participation of females at all levels of decision-making, as well as increased employment opportunities for females, including their representation in management positions.
	7- Environmentally sustainable and climate-resilient economies and communities	

SDG	Agenda 2063	Extraction industry issues
		EI can address negative social impacts like crime, alcoholism, domestic violence, prostitution, trafficking, sexual exploitation and sexually transmitted diseases in local communities by partnering with NGOs and governments. Programmes to empower women in the science, technology, engineering, environmental management, health and maths fields that are especially relevant to EI should be promoted.
6 – Clean water and sanitation	1- A high standard of living, quality of life and well-being for all citizens 7- Environmentally sustainable and climate-resilient economies and communities 10- World-class infrastructure criss-crosses Africa	EI must develop a company water strategy that accounts for the full impact of their operations on local water resources and the possible impact of water scarcity on their operations, as this could have severe implications for EI. Ensure their communities always have access to safe, clean, reliable water resources and good sanitation facilities/infrastructure. They should also conduct risk assessments on water availability and focus on efficient water usage (reduce, reuse, recycle and replace) within their processes. Effective wastewater management focusing on pollution prevention requires appropriate treatment, discharge and monitoring. EI must understand energy relationships as they are heavily interdependent. Desalination plants are also heavily dependent on the energy which EI produces. An integrated water management approach is required, including government leaders and participation from various stakeholders to oversee usage and protect supply. EI should explore opportunities for sharing water infrastructure for water usage, recycling or treatment, as this could reduce freshwater usage by improving water efficiency and reducing costs and competition for water resources.
7 – Affordable and clean energy	1- A high standard of living, quality of life and well-being for all citizens	Opportunities for improving access to energy services through shared infrastructure between the communities and EI should be considered, and measures to improve

SDG	Agenda 2063	Extraction industry issues
	7- Environmentally sustainable and climate-resilient economies and communities	energy efficiency in EI operation and production should be implemented. Renewable energies and technologies like geothermal, solar, wind, hydropower and biofuels should be explored, as they support better health and environmental outcomes than traditional fossil fuels. EI should collaborate and leverage an integrated multistakeholder approach to address energy shortages and challenges.
	10- World-class infrastructure criss-crosses Africa	
8 – Decent work and economic growth	1- A high standard of living, quality of life and well-being for all citizens	EI must provide decent and safe work for their employees. Mineral ore resources/fossil fuels are finite and will eventually deplete; therefore, mining companies and the local economy must diversify their value chains and identify other income avenues. A robust strategy for avoiding over-reliance on a company's mining operations includes enabling entrepreneurs to identify innovative opportunities in the supply chain or for value-adding projects, developing the capacities of micro, small and medium enterprises and otherwise expanding the local EI sector. Extractive industries should be accountable and corruption-free.
	2- Well-educated citizens and skills revolution underpinned by science, technology and innovation	
	12- Capable institutions and transformative leadership in place	
9 – Industry, innovation and infrastructure	1- A high standard of living, quality of life and well-being for all citizens	EI should ensure that infrastructure and technology are upgraded to make them sustainable, focusing on efficiency and avoiding/reducing environmental and social impacts and related risks. Opportunities for sharing infrastructure like roads, power plants, water treatment facilities and ports and developing new infrastructure with host governments will result in cost savings and other benefits. EI are vital for enhancing technological capabilities and knowledge transfer, as the mineral, oil and gas industry requires high technology and expertise. To develop small
	4- Transformed economies	
	6- Blue Ocean economy for accelerated economic growth	
	8- United Africa (federal or confederate)	

SDG	Agenda 2063	Extraction industry issues
	10- World-class infrastructure criss-crosses Africa	and medium-sized enterprises (SMEs), capacity building is essential to integrate them into local procurement channels, thus promoting inclusive industrialisation.
	19- Africa as a major partner in global affairs and peaceful co-existence.	Opportunities for expanding off-grid energy access in rural and isolated areas should be considered by EI working in these areas. Microgrids, cleaner fuels such as butane and renewable energy technologies like solar and wind power solutions can provide reliable and affordable energy needed for development while addressing important societal challenges such as climate change and poverty.
10 − Reduced inequalities	1- A high standard of living, quality of life and well-being for all citizens	Many governments depend heavily on revenue from EI; this revenue can fund many long-term investment projects, which is important for economic growth and reduction in inequality. Transparency in the processes regarding payments and transfers is critical for ensuring the integrity of accounting information and holding governments and EI to account. Therefore, full and transparent tax payment is imperative.
	8- United Africa (federal or confederate)	
	12- Capable institutions and transformative leadership in place	
	20- Africa takes full responsibility for financing her development	
11 − Sustainable cities and communities	1- A high standard of living, quality of life and well-being for all citizens	Mining activities can potentially affect the culture and traditions of local communities, particularly indigenous communities, by disrupting traditional practices or damaging areas of archaeological, historical, artistic or religious significance. Similarly, the industry can potentially impact natural heritage, which is equally important for people's livelihoods and well-being. Policies should be developed to protect and safeguard the world's cultural and natural heritage. Increased urban development can lead to urban encroachment on mining operations. To address the increased risks and costs associated with mining operations located near urban centres, EI actors should be proactive in planning how to address such risks at the earliest stages of the development planning process.
	7- Environmentally sustainable and climate-resilient economies and communities	
	10- World-class infrastructure criss-crosses Africa	
	16- The African Cultural Renaissance is pre-eminent	

SDG	Agenda 2063	Extraction industry issues
		Traditionally, mining projects in African locations attract job seekers and entrepreneurs from outside the area. This results in sudden population growth, which can overrun existing communities and overwhelm local governments. Amenities such as health, clean water, education and traditional livelihoods are affected negatively. Inward migration can also bring social issues, including crime, breakdowns in established social networks and disproportionately negative impacts on women. Extractive industry actors should proactively plan how to support inclusive and sustainable urbanisation in communities near mining operations.
12 – Responsible consumption and production	1- A high standard of living, quality of life and well-being for all citizens 4- Transformed economies 5- Modern agriculture for increased productivity and production 7- Environmentally sustainable and climate-resilient economies and communities 12- Capable institutions and transformative leadership in place	EI produce more than just the mined product. For example, the oil and gas industries produce important products such as lubricants, asphalt, paraffin wax and raw materials for other sectors, such as agriculture, chemicals and pharmaceuticals, of which consumption also impacts the natural environment. It is, therefore, important to understand the impact of production and consumption throughout the value chain of any product on the natural environment. Incorporating the concept of product stewardship, which is an approach to understanding and managing the impacts of products throughout their lifecycle, is imperative in the sustainable and responsible use of resources. Given their reliance on the inputs provided by suppliers and contractors, mining companies should typically ensure that, in addition to business requirements, vendors' social, environmental, safety and quality standards throughout their supply chain should align with those of the company. Coordinating supply chain logistics can shorten the supply chain, which improves environmental, social and economic sustainability.
13 – Climate action	7- Environmentally sustainable and climate-resilient economies and communities	The Paris Agreement or Paris Climate Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with GHG emissions mitigation, adaptation and finance. As per

SDG	Agenda 2063	Extraction industry issues
	12- Capable institutions and transformative leadership in place	the aims of the Paris Agreement, governments need to develop comprehensive national strategies to significantly reduce GHG emissions, as well as adaptation plans to deal with the impacts of climate. Therefore, EI must decrease their GHG emissions and understand the risks and implications of climate change for their businesses, e.g., the impacts on their infrastructure and operations across various climate scenarios, including emergency preparedness and disaster management. Addressing climate change will require collaboration and integration from all parts of society. Research is also needed on current climate change issues, and innovative low-GHG emission energy sources and emission reduction technologies will need to be advanced.
14 – Life below water	4- Transformed economies 6- Blue Ocean economy for accelerated economic growth 7- Environmentally sustainable and climate-resilient economies and communities	EI needs to incorporate environmental management risks and mitigation plans into their overall operational and management plans across the value chain of its operations; this can include wastewater treatment and discharge, air emissions, waste management, oil spill prevention during drilling and transportation, decommissioning and rehabilitation operations, etc. Accident prevention, preparedness and response strategies and procedures are important to prevent pollution and degradation of aquatic systems. Mining companies should identify their key stakeholders and always keep well-informed by frequently collaborating with them and partnering with academic experts, local scientists and communities to develop technologies and conduct studies to improve protection, understanding and knowledge of the aquatic environment.
15 – Life on land	7- Environmentally sustainable and climate-resilient economies and communities	Extractive companies should include environmental protection, biodiversity and ecosystem management strategies in their business management plans. They should be conversant with their operational value chain and the related cradle-to-grave impacts on the natural environment and society. Proper mitigation strategies to address pollution, degradation and rehabilitation should

SDG	Agenda 2063	Extraction industry issues
		be implemented to ensure natural resource protection and sustainable management. Proper safety and health procedures are imperative for a safe working environment with zero harm to all employees and the surrounding communities. Multistakeholder partnerships within EI provide opportunities to collaborate, share scientific knowledge and develop environmental management strategies to protect the natural environment.
16 – Peace, justice and strong institutions	11- Democratic values, practices, universal principles of human rights, justice and the rule of law entrenched 12- Capable institutions and transformative leadership in place 13- Peace, security and stability are preserved	The UN Guiding Principles on Business and Human Rights recognise the responsibility of companies to respect human rights. EI must integrate human rights perspectives in operational and strategic risks and impact assessments. Increasing emphasis on meaningful engagement and involvement with local communities enables companies to better understand and communicate more effectively with local communities, thereby enhancing respect and reducing conflict. Anti-corruption policies and compliance programmes should be integrated into core EI procedures, and subcontractors should be encouraged to implement such policies. SOEs often partner with independent mining companies, and these partnerships can contribute to enhancing SOEs' capabilities regarding operational experience and technology transfer, thus encouraging better management practices, etc. Transparency regarding the publication of company payments to governments and revenues that governments receive from companies is important for promoting accountable management, good governance and ironing out corruption.
17 – Partnerships for the goals	1- A high standard of living, quality of life and well-being for all citizens	Partnering with other stakeholders ensures more effective, higher-quality and sustainable outcomes. It is therefore important for EI to identify their key stakeholders and partner with them, e.g.

SDG	Agenda 2063	Extraction industry issues
	4- Transformed economies and job creation	Government can build capacity by working with EI, and EI can work with the governments of developing economies to help them with capacity building, sustainable development strategies and tools to monitor and effectively manage their revenues from the country's resource wealth. These collaboration and partnership efforts can contribute to poverty reduction, stronger government institutions, greater transparency and improved rule of law. Participating in dialogue, strengthening coordination between initiatives, incorporating SDGs as well as Agenda 2063 goals into policies and applying the indicators are some of the opportunities and approaches for companies to work with stakeholders at global, national, regional and local levels to achieve the SDGs as well as the goals of Agenda 2063.
	12- Capable institutions and transformed leadership at all levels	
	19- Africa as a major partner in global affairs and peaceful co-existence	
	20- Africa takes full responsibility for financing her development	

NB: It is important to note that this mapping is just a guideline for the auditor/project leader/reader. Other relevant issues and goals could apply to EI but may have been omitted in this mapping.

Annexure 4: Considerations on SOE's

Table 14: SOE considerations step by step

Step	Consideration
Step 1: Agree on a definition of SOEs	• What is the adequate definition of SOEs nationally, considering the minimum definition in the EITI Standard and domestic legislation? • Which companies are majority-owned by the government (50 per cent +1 share)? Over which companies does the state exercise equivalent control without holding majority equity ownership? • Are these companies primarily engaged in the EI on behalf of the government (i.e., holding extractives licences, holding equity in extractives companies)? Consideration could also be paid to companies' non-commercial roles, such as acting as concessionaires on behalf of the government.
Step 2: Comprehensively list all state participation in extractive companies and projects	• What are the government's direct equity interests in extractives companies, including minority interests and in SOEs? • What are SOEs equity interests in subsidiaries, joint ventures and other extractives companies? • What are SOEs participating interests in PSCs and other extractive projects? • What are the terms associated with each equity interest held by the state or SOE?
Step 3: Describe any changes in state participation in the year under review	• What have been the state or SOE ownership changes in extractives companies during the year under review? • What were the transaction terms for each state or SOE ownership change in the year under review? (I.e., What was the valuation of the equity interest? What consideration was paid?)
Step 4: Assess the materiality of SOE's revenues and payments to the government	• Do SOEs collect any revenues (in cash or in kind) from private companies or extractive subsidiaries/joint ventures? What is the value of these revenues? • Do SOEs make payments or transfers to the government? What is the value of these payments/transfers? • What is the adequate reporting threshold for selecting SOEs to be required to disclose information, given the national context?

Step	Consideration
Step 5: Review and describe the statutory financial relations between SOEs and the government	• What are the existing legislative and regulatory arrangements that govern state participation in the EI? • Is the SOE entitled to receive budget transfers or subsidies? • Can the SOE's Board of Directors decide on its dividends? • Can the SOE retain earnings? • Can the SOE reinvest in its operations? • Can the SOE seek third-party financing (either debt or equity)? • Is the SOE entitled to receive budget transfers or subsidies? • Can the SOE's Board of Directors decide on its dividends? • Can the SOE retain earnings? • Can the SOE reinvest in its operations? • Can the SOE seek third-party financing (either debt or equity)?
Step 6: Describe the financial relations between SOEs and the government in practice	• Overall, were the SOE's financial relations with the government in line with the rules in the year under review (as described under Step 4)? • Did the SOE receive any state budget transfers, subsidies or other capitalisations in the year under review? If yes, what was the corresponding value? • Did the SOE declare and/or pay any dividends in the year under review? If yes, what was the corresponding value? • Did the SOE retain earnings in the year under review? If yes, what was the corresponding value? • Did the SOE reinvest in its operations in the year under review? If yes, what was the corresponding value?
Step 7: Describe any state or SOE loans or loan guarantees to extractive companies	• Did the SOE have any outstanding or new third-party financing (debt or equity) in the year under review? If yes, what was the corresponding value? • Did the state have any outstanding loans or loan guarantees to extractive companies (including SOEs) or projects in the year under review? • Did the SOE have any outstanding loans or loan guarantees to extractive companies or projects in the year under review? • How are the terms of each loan and guarantee identified? E.g., Tenor, repayment terms, interest rate.
Step 8: Liaise with each material SOE on the publication of their financial statements	• Does the SOE have financial statements? Are they audited? Are they prepared based on international accounting standards, such as International Financial Reporting

Step	Consideration
	Standards? Were they audited in line with international standards? • Are the SOE's financial statements published? If not, is there a reason? • If the publication of full financial statements by the SOE is not possible, is the SOE willing to publish a summary of its balance sheet, profit, loss and cash flow statements? What other intermediary steps can be taken? • What rules and practices are related to the SOE's expenditures management (operating and capital expenditures)?
Step 9: Explore opportunities for improving SOE's procurement, subcontracting and corporate governance	• What are the rules and practices related to the SOE's procurement? • What are the rules and practices related to the SOE's subcontracting? • What are the rules and practices related to the SOE's corporate governance? E.g., *Composition, appointment, mandate and Code of conduct of the Board of Directors and management.*

Annexure 5: SAI-ACA Resolutions

The First "SAI – ACA" Anti-Corruption Seminar to Explore Collaboration Between SAIs and ACAs By Creating Awareness and Joint Action on How SAIs & ACAs Can Contribute to State Anti-Corruption Efforts.

Johannesburg, 17 –19 April 2023

Resolution of the Seminar

The first "SAI- ACA" Anti-corruption seminar to explore collaboration between the SAIs and ACAs by creating awareness and joint action on how SAIs and ACAs can contribute to state anticorruption efforts was held under the theme *"The Role of SAIs and Institutionalised Good Governance in State Anti-corruption Effort"*.

Having explored the possibilities of cooperation between SAIs and ACAs of the respective countries in attendance.

Noting the increased expectation and need for SAIs and ACAs to collaborate their efforts in an efficient and effective manner with due respect to their mandates.

Noting with appreciation the efforts of AFROSAI-E; FSVC; GGS; GIZ; The Global Fund; and ACFE to creating a platform for the SAIs and ACAs to meet and explore ways of collaboration.

Institutionalised good governance:

1. *Reaffirms* that to contribute effectively to state anti-corruption efforts, SAIs & ACAs should exist as institutions that are above board, which lead by example when it comes to issues of corruption.
2. *Calls upon* SAIs and ACAs to put the spotlight on organizational values and ethos as a basis to both individual and organisational performance evaluation. If SAIs and ACAs embed their values and ethos into their performance evaluation systems, this will enable them to exist as institutions that are above board, which lead by example when it comes to issues of corruption.

Fraud & Corruption concepts for SAIs SAI responses to fraud & IFFs:

3. *Notes* that from a national strategic perspective, there are several corruption & other specific IFFs considerations that SAIs and ACAs can incorporate into their short-, medium- and long-term planning to ensure a structured and institutionalised approach in contributing to state anti-corruption efforts.
4. *Commits* SAIs and ACAs to contribute to the reduction of corruption and illicit financial flows by 2030 through the development and implementation of their strategic and operational plans in line with the SDG 16 and other international Conventions on anti-corruption.
5. *Through* the development of the five-year Strategic Plans (long-term) which are aligned to the national, continental/ regional, and global instruments. These include UN SDG (1.4 NDPs, UN, SADC, Into Saint). Cascade these Strategic plan into the annual plan, with targets Operational level- short term and medium term and deploy instruments to monitor the implementation.

Financial Action Task Force (FATF) Country grey listing standards

6. *Underlines* that SAIs and ACAs should play a more proactive role with reference to their country's current grey listing status according to FATF standards.
7. *Decides* that SAIs and ACAs should collaborate in building capacity to enhance the performance of compliance audits with reference to FATF standards.

Policy development on anti-corruption in the region

8. *Recognises* that there are several anti-corruption treaties and conventions ratified by their respective countries. Chief amongst them the African Union Convention on Preventing and Combating Corruption (AUCPCC).
9. *Reaffirms* that with reference to their mandates, SAIs and ACAs should contribute to policy development & implementation in relation to anti-corruption treaties and conventions ratified by their respective countries.
10. *Decides* that SAI has to enhance Performance Audits in competent and supervisory authority/institutions. To identify performance gaps in their mandate and put- in place corrective action plans in place.
11. *Further decides* that SAIs & ACAs to undertake implementation assessment of the anti-corruption related treaties/Convention and submit reports to respective Parliaments, relevant National institutions as well as international bodies.

Continued SAI – ACA collaboration

12. *Recognises* the resolutions of the December 2021, the 9th session of the Conference of the States Parties (COSP) to the United Nations Convention against Corruption (UNCAC) with reference to the role of SAIs and ACAs in state anti-corruption efforts.
13. *Commits* to implement the practical guideline from the United Nations Convention against Corruption (UNCAC) from the SAIs and ACA perspective based on local needs and in response to specific country environment.
14. *Recommends* for AFROSAI-E and its partners to guarantee the growth of this SAI to ACA platform for further sustainable and continued collaboration.

Ends...

Annexure 6: Useful links

AFROSAI-E

WGEI - Working Group on Audit of Extractive Industries (intosaicommunity.net)

African Tax Administration Forum (ATAF) http:www.ataftax.org

Africa Climate Summit

ATAF model DTA - transfer pricing

Toolkit for Transfer Pricing Risk Assessment in the African Mining Industry

Bain & Company http://www.bain.com/publications

Contracts – Open oil https://openoil.net

Contract; oil, gas and mining http://www.resourcecontracts.org

EI Sourcebook http://www.eisourcebook.org/

Extractive Industries Transparency Initiative – EITI https://www.eiti.org/

International Monetary Fund http://www.imf.org/external/index.htm

IMF Primary Commodity Prices http://www.imf.org/external/np/res/commod/index.aspx

IGF Resources Archive - Intergovernmental Forum (igfmining.org)

E-mail: publications@imf.org

Request a copy of "Administering Fiscal Regimes for Extractive Industries" A Handbook.

Author: Jack Calder. ISBN: 978-1-47557-517-0

Intergovernmental forum for mining of minerals http://www.igfmining.org

Natural Resource Governance Institute http://www.resourcegovernance.org/

OECD http://www.oecd.org/

http://www.oecd.org/ctp/transfer-pricing/

Rapaport Diamonds Price List http://www.diamonds.net/Prices/RapaportPriceLists.aspx

World Bank – Value Chain document

http://siteresources.worldbank.org/INTOGMC/Resources/ei_for_development_3.pdf

Public energy data:

- www.eia.gov
- www.bp.com
- www.opec.org
- www.ieg.org

Mining data:

- www.ey.com/GL/en/Industries/Mining---Metals/Business-risks-in-mining-and-metals
- www.usgs.gov/
- www.bp.com

Some useful links for further reading on transfer pricing – tools and resources

- OECD Transfer Pricing Guidelines: https://read.oecd-ilibrary.org/taxation/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations-2017_tpg-2017-en#page1
- OECD on transfer pricing: http://www.oecd.org/ctp/transfer-pricing/

- Tax Justice Network on transfer pricing: http://www.taxjustice.net/topics/corporate-tax/transfer-pricing/
- PwC on international transfer pricing requirements and oil and gas review 2018. https://www.pwc.com/gx/en/services/tax/publications/international-transfer-pricing.html
- https://www.pwc.co.za/en/assets/pdf/africa-oil-and-gas-review-2018.pdf
- EU Joint Transfer Pricing Forum: http://ec.europa.eu/taxation_customs/taxation/company_tax/transfer_pricing/forum/index_en.htm
- 2017-18 EY World Transfer Pricing Reference Guide: http://www.ey.com/GL/en/Services/Tax/International-Tax/Transfer-Pricing-and-Tax-Effective-Supply-Chain-Management/Worldwide-Transfer-Pricing-Reference-Guide---Country-list
- RoyaltyRange database on transfer pricing: http://www.royaltyrange.com/home/royalty-rate-database/transfer-pricing?gclid=CN77hvyh3cYCFUTecgodDZAL4A

Macroeconomic Management in Resource-Rich Countries: https://www.edx.org/course/macroeconomic-management-in-resource-rich-countries-2

Annexure 7: Risk mapping templates

Template 1: Risk identification matrix

Sector:				**Date last updated:**			
Prepared by:				**Reviewed by:**			
Value chain/ Risk management	**Policies and Legal framework**	**Government activities/ decision to explore/ extract**	**Award of contracts and licences**	**Monitoring of operations**	**Assessment and collection of revenues**	**Revenue management and allocation**	**Implementation of sustainable policies**
Government activities							
Government entity(ties)							
Other stakeholders							
Risk indicators/ factors							
Risks along EI value chain							
Fraud risks							

Template 2: Risk mapping matrix

Sector: Prepared By:							Date: Reviewed By:			
Value Chain/Risk Management	Risk Indicators	Risks	Risk Rating		Overall Assessment of Risk	Controls (Existing controls that may mitigate the risks)	Audit Topic	Audit type	Responsible Unit	When will the audit be done
			Likeli hood	Impact						
Policies and Legal Framework										
Government activities/decision to explore/ extract										
Award of Contracts and Licences										
Monitoring of Operations										
Assessment and Collection of Revenues										
Revenue Management and Allocation										
Implementation of sustainable Policies										