INTOSAI

WGEI

Working Group on Audit of Extractive Industries

THE EXTRACTIVE INDUSTRIES TRAINING FRAMEWORK

Revised 2024

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Goal Chairs
Collaboration
PSC – CBC – KSC

Quality Assurance Certificate of the Goal Chair

Based on the assurance provided by the **INTOSAI Working group on Audit of Extractive Industries (WGEI)** and the assessment by the Goal Chair, it is certified that "***The Updated Extractive Industries Training Framework",*** which is placed at level ***3 (three)*** of Quality Assurance as defined in the paper on "Quality Assurance on Public goods developed outside Due Process" approved by the INTOSAI Governing Board in November 2017 has been developed by following the Quality Assurance processes as detailed in the quality Assurance Certificate given by the Working Group Chair.

The product is valid till 28th October 2027 and if it is not reviewed and updated by 28th October 2027, it will cease to be a public good of INTOSAI developed outside the Due Process.

Girish Chandra Murmu
Chair of INTOSAI Knowledge Sharing and
Knowledge Service Committee

Quality Assurance Certificate

Chair of the Working Group on Audit of Extractive Industries

This is to certify that '***the Updated Extractive Industries Training Framework'*** which is placed at level ***three (3)*** of Quality Assurance as defined in the paper on "Quality Assurance on Public goods developed outside Due Process" approved by the INTOSAI Governing Board in November 2017 has been developed by following the Quality Assurance processes as detailed below:

I. ***WGEI members resolved to update the Extractive Industries Training Framework in July 2023.***
II. ***In November 2023, the WGEI Secretariat requested the WGEI Learning Taskforce to study the Framework in preparation for the review process in 2024.***
III. ***The Secretariat requested WGEI members to share their feedback and experience of using the Framework, and their proposals for updating the document in June 2024.***
IV. ***Eight members (8) shared their feedback and experience of using the Framework.***
V. ***The Learning Taskforce met in Pretoria, South Africa from 15th to 19th July 2024. The Taskforce reviewed and updated the Framework based on feedback received from members about their experience using the Framework and current developments in the EI sector.***
VI. ***The draft updated Framework was sent to WGEI members in August 2024 seeking their comments.***
VII. ***Eight (8) members of the working group submitted comments.***
VIII. ***The Learning Taskforce addressed the comments and made necessary adjustments in September 2024.***
IX. ***Final draft of Updated Framework was presented to the WGEI Steering Committee for discussion and approval in October 2024***
X. ***Revised Extractive Industries Training Framework approved at annual WGEI Steering Committee meeting in October 2024.***

The product developed is consistent with relevant INTOSAI Principles and Standards. The structure of the product is in line with the drafting convention of non-IFPP documents.

The product is valid till ***28th October 2027*** and if it is not reviewed and updated by ***28th October 2027***, it will cease to be a public good of INTOSAI developed outside the Due Process.

Edward Akol

Chair of the Working Group Working Group on Audit of Extractive Industries

CONTENTS

LIST OF ACRONYMS

AFROSAI-E	African Organisation of English Speaking Supreme Audit Institutions
ATAF	African Tax Administration Forum
COPAS	Council of Petroleum Accounting Society
EI	Extractive Industries
EITI	Extractive Industries Transparency Initiative
ERP	Enterprise Resource Planning software
ESG	Environmental, Social and Governance Frameworks
FASB	Financial Accounting Standards Board
GRI	Global Reporting Initiative
IASB	International Accounting Standards Board
IDI	INTOSAI Development Initiative
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
INTOSAI	International Organisation of Supreme Audit Institutions
IPIECA	International Petroleum Industry Environmental Conservation Association
IPSAS	International Public Sector Accounting Standards
NGO	Non-Governmental Organisation
NRGI	Natural Resource Governance Institute
PWYP	Publish What You Pay
SAI	Supreme Audit Institution
SEEA	System of Environmental Economic Accounting
SDGs	Sustainable Development Goals
UK SOAP	United Kingdom Standard Operating Accounting Procedures

UN	United Nations
UNCTAD	UN Trade and Development
UNODC	United Nations Office on Drugs and Crime
WGEI	Working Group on Audit of Extractive Industries

DEFINITIONS

- **Extractive Industries** – Limited to Oil & Gas, Minerals/Metals. Material / Guidelines for other depletable resources like Forests & Fisheries can be obtained from other INTOSAI guidance under WGEA
- **Operational Staff** – SAI staff responsible for implementing the audit plan.
- **SAI Management** - SAI staff responsible for making strategy and policy within a SAI.

FOREWORD

The Working Group on Audit of Extractive Industries (WGEI) was established by the INTOSAI in 2013. Currently, the WGEI has 46 SAIs as its registered members and two observer members namely the INTOSAI Development Initiative (IDI) and AFROSAI-E. As part of its mandate, WGEI organises and facilitates training and other learning activities based on the needs of its members.
The training process is guided by the Extractive Industries Training Framework (Framework), which was developed in 2019 with the objective of standardizing training and strengthening the capacity of Supreme Audit Institutions (SAIs) and interested stakeholders, within and outside the INTOSAI to carry out high quality audits in the extractive industries thereby promoting transparency, accountability and good governance of the sector. The Framework was intended to be used as a guide to develop course content for training or learning in the audit of EI.

The Framework was developed and approved at level 3 of the Quality Assurance ('QA') Process as defined in the paper on "QA on Public goods developed outside Due process" and was due for review and update by 30th October 2021. However, due to the effects of the Covid-19 Pandemic and other logistical challenges, this was not possible. From 15th to 19th July 2024, the WGEI Learning Task Force convened in Pretoria, South Africa to review and update the Framework. The review was based on feedback received from WGEI members about their experience using the Framework and current developments in the EI sector.

INTOSAI – WGEI acknowledges the inputs received from the SAIs of India, Indonesia, Kenya, Norway, Uganda, United States, Zambia, Zimbabwe, and AFROSAI-E and the Canadian Audit and Accountability Foundation (CAAF). We also acknowledge the support extended and facilities provided by AFROSAI-E during the review meeting.

It is my pleasure to present to you the updated Framework for use in capacity building. This is a living document which is subject to improvement as and when required. As you make use of the Framework, we encourage members to continuously identify arears of improvement to make it more relevant.

Edward Akol

AUDITOR GENERAL OF UGANDA AND CHAIR OF THE INTOSAI WORKING GROUP ON AUDIT OF EXTRACTIVE INDUSTRIES

INTRODUCTION

The number of modules has been maintained at ten, taking into account the evolution of the extractive industry, the diversification of stakeholders, their specialization and the increasing demands of transparency and sustainability, the Framework has been enhanced with new topics to allow users flexibility to meet present and future capacity needs. The modules have been developed based on the EI value chain and are therefore integrated/ interconnected and indivisible. The modules are designed for all levels of staff in a SAI depending on their needs. Faculties are encouraged to customise the modules to the local EI industry and regulatory environment of the course participants.

The course dissemination methods have been eliminated from each module and shall be determined for each training course in accordance with individual needs, available faculties and principles of andragogy. The selected methods should take into account the latest developments and knowledge in EI. The methods of course dissemination include:

- Group discussions
- Sharing experiences
- Visual illustrations
- Case studies
- Audit reports, AFROSAI-E and INTOSAI internal training documents, Company financial statements
- E-Learning, eBooks
- Lectures
- Audio visuals
- Field visits and study tours
- Practical/hands-on exercises with ERP and other software

MODULE 1:

AN OVERVIEW OF THE EXTRACTIVE INDUSTRIES

Module Background:

This module is an introductory course to acquire an overview and general knowledge of the Extractive Industries (EI) sector. EI in this context refers to minerals and oil and gas per the WGEI Terms of Reference. However, other resources such as forestry and fisheries may have similar or related concepts to minerals, oil and gas.

Course Content:

1. Introduction of the Extractive Industries

- Key definitions
- Overview of EI
- Characteristics of the EI
- Benefits/opportunities and challenges of the EI
- Political economy of the EI (including energy and mineral markets)
- Resource curse paradox

2. Value chain

- Definition and Purpose
- Approaches to value chain - Industry and Government perspective
- EI value chain steps
    - Legal framework
    - Resources exploration
    - Award of contracts and licenses
    - Monitoring of operations
    - Collection of revenue

        - Revenue Management
        - Implementing sustainable policies

3. Key players, external stakeholders, and their roles in the EI

- Identify key stakeholders such as:
    - Local communities
    - Indigenous entities
    - SAIs
    - Government authorities
    - Oil, gas and mining companies
    - NGOs (NRGI, PWYP, etc)
    - Multilaterals (World Bank, IMF, UN, etc.)
    - Other global initiatives relevant to EI (ATAF, IPIECA, EITI, home country legislation, etc.)
    - Other stakeholders (e.g. external auditors)
- Discuss the Roles of Stakeholders

4. The role of SAIs in EI

- What is the role of SAIs in the EI?
- Differences in SAI mandates
- Overview of SAI resources, experience, and expertise
- Types of audits that can be performed in EI

5. Discuss Emerging issues such as:

- Illicit Financial Flows (IFF)
- Renewable energy
- Energy transition and legacy effects
- Climate change, including initiatives such as the ClimateScanner
- Space mining
- Deep sea mining
- Geothermal Energy.
- Artificial Intelligence

Duration: 2 days for SAI management and Operation Staff

MODULE 2:

POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

Module Background:

The legal framework governing the Extractive Industries (EI) starts with a broader policy for each respective country. From these policies, governments come up with the laws governing the EI. Regulations to operationalise the laws are then formulated. From these regulations, contracts and agreements are signed between governments and operators. Guidelines on how to enforce these agreements are also developed by implementing agencies.

The main risk to government under this step of the value chain is the inadequacy of, and lack of compliance with the framework. This module is aimed at equipping participants with knowledge on the legal and institutional frameworks governing the EI.

Course Content:

1. Introduction to legal frameworks in the EI

2. SAI Mandate

- Discussion of legal mandates of SAIs
- Review and mapping SAI audit Acts and other laws, regulations, and INTOSAI standards

3. Discussion of the legal framework as a crosscutting issue across the value chain

- EI Provisions under the country's Constitution
- Country level policies in the EI

- Laws in force in the EI, e.g. environmental laws, laws relating to Indigenous entities, revenue collection and sharing, oil/gas, mining laws and property laws
- Regulations operationalising the laws in force in the EI
- Contracts/agreements in force in the EI
- Guidelines in force in the EI
- Types of International agreements, such as Unitization agreements, bi-lateral and multi-lateral agreements

4. Discuss the institutional framework as a crosscutting issue across the value chain

- Regulators
- Monitors, such as Third-party monitors
- Operators
- Artisanal or Small Scale Mining
- State-Owned Enterprises
- Transparency initiatives, such as EITI

5. Audit considerations under the Legal framework in EI

- Responding to risks that have been identified
- Analysing the gaps between the legal framework and the project operational and contract terms
- Role of the SAI and types of audits

Duration: 1 day for SAI Management, 2 days for Operational staff

MODULE 3:

EXPLORATION AND DATA MANAGEMENT

Module Background:

This module looks at how companies explore, search for and manage the data obtained from the exploration of extractive resources. This exercise may be carried out using different methods including the use of geophysical surveys, seismic surveys, geochemical surveys and other methods. The data obtained through these methods is used to reach a conclusion as to whether there are traces of minerals/petroleum. This data is made available to interested companies to make a decision whether to invest in that country or not. It is also used to estimate potential resources available for exploitation and to identify constraints to project execution and plan for the whole of government priorities.

The main risks to government under this step of the value chain are misstatement in the existence, completeness, accuracy and valuation of the exploration data in a manner which disenfranchises the citizens, and failure to collect the data. This module is aimed at equipping participants with knowledge on the process of exploration and data management in the EI.

Course Content:

1. Introduction to Exploration and Data management/ data maps, reprints, tapes and samples used in the EI.

2. Exploration data collection

- Geophysical methods
- Geochemical methods
- Geological methods

- Geodetic/geospatial methods
- Physical methods (drilling, etc.)
- Other methods

3. Basic Geological and Engineering knowledge

- Collection of exploration data
- Interpretation of exploration and production data
- Analysis of exploration/production data
- Dissemination of Data by audited party
- Adequacy and availability of historic and current data for production monitoring

4. Review of Exploration and Production Investment Plan data

- Review of exploration and production plans
- Assessment of plan cost benefit analysis

5. Storage and distribution of data

- Existence of data
- Completeness of data
- Accuracy of data
- Valuation of data
- Maintenance, Security and Data Protection

6. Audit considerations under Exploration and Data management in the EI

- Risk assessment
- Audit procedures to respond to identified risks
- Consider the use of the work of an expert in exploration and data analysis during the audit

Duration: 1 day for SAI Management, 5 days for Operational staff

MODULE 4:

AWARD OF CONTRACTS AND LICENCES

Module Background:

This module is aimed at participants getting knowledge on how governments allocate exploration, development and production rights/licenses to EI operators. These processes guide the operations and relationship between governments and the contracted companies. This relationship is governed by the terms and conditions specified in the contracts.

The main risk to government under this step of the value chain is lack of transparency and fairness in allocating exploration and production rights, and failure to award rights through competitive processes to maximise benefits for the citizens.

Course Content:

1. Introduction to contracts and licenses in the EI

- Definitions
- Categories of contracts

2. Awarding process

- Discussion of methodology of awarding process
- Methods of awarding and allocating licences
- Transfer and sale of licenses / permits

3. Contract /agreements terms and conditions

- Contractual systems
- Concessionary systems
- State participation through SOEs

- Other arrangements such as Joint Ventures, Public Private Partnerships, off take agreements, etc.

4. Audit considerations under contracts and licenses in EI

- Risk assessment
    i. Fraud and corruption / transparency in awarding contracts and in contractual terms and conditions
    ii. Compliance with contractual terms and conditions
    iii. Assessing fairness / transparency of contract terms
    iv. Capacity/ knowledge gap between the parties
    v. Assessing feasibility of EI Contracts
- Audit procedures to respond to identified risks

Duration: 1 day for SAI Management, 4 days for Operational staff

MODULE 5:

MONITORING AND EVALUATION

Module background:

Extractive industries, when managed prudently, can underpin sustainable development and make a lasting positive impact on the life of citizens. However, without proper monitoring and evaluation policies, EIs have the potential to destabilise public financial management systems. They can also lead to negative environmental and social impacts and increase the risk of corruption in the value chain.

The module will provide participants with an understanding of the role of key stakeholders in monitoring and evaluation. This module outlines various aspects of monitoring and evaluation, which affect management of revenues for economic diversification and development, among others. The main risks include lack of capacity by government to monitor and enforce compliance with laws and regulations, gaps in understanding current Environmental, Social and Governance reporting frameworks, and duplication of roles. There is a need for SAIs to audit compliance by the contracted companies with the terms and conditions specified in the contracts.

Course content:

1. Monitoring and evaluation throughout the value chain

- Introduction
- Key components of monitoring and evaluation (Human resource capacity, reporting, surveys and surveillance, enforcement, etc.)
- Monitoring and evaluation policies, regulations, actors and strategic check points at each stage in the value chain
- Corporate governance in the extractive industries sector

2. Review of the role of regulators in EI

- Monitoring and Evaluation legislation in the EI
- Monitoring and evaluation mechanisms
- Tracking methodologies

3. Review the role of third party evaluators and reporting frameworks

- Third party quality control (e.g. umpires)
- ESG Reporting Frameworks (e.g. GRI, EITI, IFRS)
- Home country reporting

4. Monitoring of operations and materials

- Consideration of compliance with operational standards
- Inventory categories used
- Cost of carrying inventories
- Health and safety issues in handling inventories

5. Down Stream Petroleum and Solid Minerals audits

- Monitoring of supply outlets such as fuel stations
- Monitoring of meters at the Central Processing Facility (CPF) and at the refinery
- Monitoring of solid minerals movement up to selling points and at the refinery

6. Audit considerations under Monitoring and Evaluation in EI

- Risk assessment
- Audit procedures to mitigate the identified risks

Duration: 1 day for SAI Management, 2 days for Operational staff

MODULE 6:

ASSESSMENT AND COLLECTION OF REVENUES

Module Background:

There is always a fundamental conflict between resource-rich countries and Extractive Industries companies over the allocation of risk and rewards. Both wish to maximise rewards and transfer risks as much as possible. There is need for auditors to understand the different ways that governments can earn revenue and control risks from Extractive Industries.

This module is meant to equip auditors with skills and techniques to conduct audits on assessment and collection of revenue from the Extractive Industries (EI). The auditor should be broad in assessing revenue understatement risk factors such as weak or lack of assessment systems and Institutional capacity. In addition, this module will enable auditors to analyse the cost structures of EI companies. Auditors will learn how to analyse whether fiscal authorities are ensuring that inter-company transactions are priced in accordance with market conditions for similar goods and services. The main risk to government is transfer pricing by EI companies to avoid taxation, tax evasion and post operation liabilities.

Course Content:

1. Introduction to Revenue assessment and collection

- Identification and analysis of the revenue streams in the EI (Tax and Non-Tax revenues in the EI).
- Commercialisation mechanisms
- Fiscal Systems e.g. Signature/discovery and production bonuses, Royalties, surface rentals, profit oil, Income & Capital gains tax, dividends, Resource Rental Taxes, revenue-in kind (infrastructure, capital equipment to be supplied under contract), Trusts.

- Understanding the fiscal and macro policies of the country
- Nature of State equity, carried interest, participating interest, back-in rights
- Windfall taxes
- Different methods of Government take (Production sharing, including state share of production)

2. Understanding how revenue is assessed and collected

- Budgeting for the various types of revenues and fines
- Assessment of value of government and company shares
- Methods of tax and royalty collection
- Revenue forecasting from the EI and other taxes

3. Reporting of costs and revenue

- Measurement of production volumes consumed and exported by EI actors and government (daily and incremental)
- Valuation and Pricing of petroleum and minerals (price controls can create stockpiling, hoarding & glutting stock outs)
- Sale of minerals/oil through middlemen (prices may differ from market prices)
- Accounting for by-products after refining either as revenue or cost
- Net-back issues for the delivery points & tariffs
- Crude and Minerals Inventory management - underlifts and overlifts in export pipelines, reservoirs and other surface facilities to the end point of the contract, unfulfilled contracts for mineral concentrates in transit or unrefined, unmined mineral reserves
- Cost oil calculation & transfer pricing-related risks
- Cost allocation between produced products – overheads allocation, ring fencing

4. Illicit Financial Flows (IFFs)

- Definitions and forms of IFFs (in line with UNODC / UNCTAD manual on IFF)
- Transfer pricing (TP)
- Export under-invoicing and or import over-invoicing
- Tax evasion - Beneficial ownership, secrecy and tax haven jurisdictions, Dual Taxation Agreements/ treaties
- Base Erosion and Profit Shifting (BEPS)

5. Identification of Agencies responsible for Revenue collection

- Centralized collection of Revenues at state level
- Decentralized collection of Revenues at provincial or municipal level

6. Audit considerations under assessment and collection of revenue in EI

- Risk assessment
- Audit procedures to respond to identified risks

Duration: 3 days for SAI Management, 5 days for Operational staff

MODULE 7:

REVENUE MANAGEMENT AND ALLOCATION

Module background:

In resource-rich countries, oil, gas and mineral revenues offer opportunities to accelerate economic growth and development, and reduce poverty. Likewise, their unpredictability, volatility and size relative to the rest of the economy, as well as their finite nature can create perverse incentives, complicate economic management, impede development and in some cases create conflicts.

Learners will explore and analyse how to address challenges of overdependence on a single source of revenue, over-borrowing, poor public investments, suboptimal commercial investments, destabilising boom and bust, patronages and conflicts between national and subnational authorities. Participants will also be exposed to tools describing how revenues can be distributed to national budgets, sovereign wealth funds, sub-national jurisdictions and state enterprises.

The module will prepare learners to analyse the appropriateness of revenue distribution and management by government so as to provide advice to policy makers on specific spending and saving choices.

In the Revenue Management and Allocation stage of the value chain, the main risk to government is mishandling of resource revenues which may be allocated to non-disclosed bank accounts and flouting of investment rules.

Course Content:

1. Fiscal rules describing revenue distribution to:

- National budgets,
- Sovereign wealth funds
- Regional/local authorities
- National oil and mining companies
- Mineral exploration companies

2. Operation of Sovereign Wealth Funds

- Introduction to Operation of Sovereign Wealth Funds including;
    - Investment considerations, fund manager, policies, alignment with state and fund objectives
    - Target valuations
    - Portfolio risk management and volatility
    - Performance and asset measurement
    - Responsible investment
- Advantages and disadvantages (premature funds, “resource” curse) (in many cases, economic growth begins to under perform long before the first drop of oil is produced.)
- Tracking inflows and withdrawals from the SWF – Accountability mechanisms in place , Banking, Accounting and Auditing
- Case studies of various types of SWF e.g. Norway’s SWF, Chilean Economic and Social Stabilization Fund (stabilization fund), Abu Dhabi Investment Authority (long term savings fund), Ghana's Minerals Income Investment Fund (MIIF), etc.

3. Analysis and evaluation of the types of Investments made from EI revenues

- Nationally, types of budget support (fiscal rules, infrastructure development, Research & Development, diversification methods, Dutch disease, etc.)
- Commercial and ethical investments, domestic and international investments.
- Managing volatility at Regional/Sub-national levels
- Review stabilisation policies for price fluctuations.

4. Audit considerations

- Risk assessment
- Recommendations to respond to identified risks

Duration: 2 days for SAI Management, 4 days for Operational staff

MODULE 8:

ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

Module Background:

Though Extractive Industries are drivers of economic growth there are serious environmental effects associated with them. The effects start right from the exploration stage and extend through the extraction and processing of oil, gas and minerals, and continue after the exploration site has closed.
This module will enable auditors to understand the environmental impacts of EI on land, air, water and ecology and the issues at various stages of the EI value chain, the process of Environment Impact Assessment and the management / mitigation of identified impacts.

Learners will be introduced to the consequences of EI on various social classes and cultural heritage, displacement of people / communities, local content requirements in EI, the linkage of EI to the Sustainable Development Goals, and sustainability reporting initiatives such as EITI. The module also covers green mining and the importance of newer technologies for improving efficiencies and reducing carbon/ecological footprints of the extractive industries as well as health and safety issues.

The main risks to governments regarding environment and sustainable development are environmental degradation, loss of biodiversity, occurrence of disasters and improper decommissioning of mines. Other risks include displacement of project affected persons and use of out-dated technologies resulting in unsustainable extraction.

Environmental issues are cross-cutting and exist throughout the value chain of extractive industries and thus can also be part of audits conducted with a limited scope of an identified part of the value chain.

Course Content:

1. Environmental and Social Issues in Extractive Industries

- Environmental and Social issues (including cultural and gender issues) during the life cycle of EI
- Environmental Impacts of Extractive Industries on:
    - Air (including Noise, emissions during mining, etc)
    - Water
    - Forests and Biodiversity (on-shore and off-shore ecology)
    - Protected areas
    - Land degradation e.g. abandoned mines, waste from mining (tailings, industrial waste), oil spills, retention ponds, inactive well fields, etc.

2. Management of Environmental and Social Impacts of Extractive Industries

- Environment Impact Assessments (EIA) and Social Impact Assessments
- Mitigation of Environmental and Social Impacts, Environment Management Plans
- Rehabilitation of Project Affected Persons, Corporate Social Responsibility in EI
- Impacts of EI activities on wildlife (both off and onshore)
- Environment Management Systems
- Health and Safety Issues in EI
- Mainstreaming of Gender issues in EI
- Disaster preparedness
- Disclosure requirements
- Government responses to the environmental and social problems of Extractive Industries

3. Sustainability Initiatives in Extractive Industries

- Sustainable Development Frameworks for Extractive Industries
    - Decommissioning / restoration of mining, extraction or exploration sites
    - Analysis of mine closure projects
    - Mining technologies and the environment (green mining) used in EI
    - Industrial ecology in EI (zero waste)
    - Climate Change Resilient Materials
- Extractive Industries and SDGs
- National and Local Content Requirements
- Participation of indigenous Peoples
- Marginalised or vulnerable populations, sustainability considerations
- Other Best Practices

4. Energy transition in Extractive Industries

5. Sustainability, emissions, EITI and ESG Reporting

6. Choosing and Designing Audit of Extractive Industries from environmental / sustainability perspectives

- Risk assessment
- Recommendations to respond to identified risks

Duration: 2 days for SAI Management, 6 days for Operational staff

MODULE 9:

AUDIT OF EXTRACTIVE INDUSTRIES IN THE DIGITAL ENVIRONMENT

Module Background:

The Extractive Industries (EI) sector has embraced the digital environment and various information Technology Systems have been implemented in EI to manage core business processes, often in real-time and facilitated by software. One example is ERP systems which can manage almost every aspect of operations within EI i.e. planning, production, contract management, procurement, human resource, sales, finance, legal reporting, assets management, etc.

Information Technology systems are by nature data-driven, dynamic and subject to rapid changes. This creates a challenge for SAIs to keep pace and to fully equip their employees to engage effectively with audited entities. SAIs which have inadequate personnel trained in Information Technology Systems face an uphill task. However, automation of business operations within EI provides opportunities for SAIs in terms of data availability and work flow comprehension.

Information Technology systems use and generate huge volumes of data; however, this data yields limited information until it has been analysed using tools capable of handling such quantities. The massive volume of data now available inside and outside extractive industries and the corresponding power of data analytics technology is fundamentally changing audit. As a result, SAIs must fill their knowledge gaps in using and auditing information technology systems.

Data and data analytics enable auditors to better identify financial and regularity reporting fraud and operational business risks. Auditors can now more precisely tailor their lines of inquiry to deliver more relevant audits. Increased data volumes, advanced analytics, and visualization technology deliver audit and business insights that impact ways in which audits are planned, executed and delivered. This module imparts learners with a basic understanding of information technology systems and data analytics techniques.

Course Content:

1. Introduction to automation of business activities and Information Technology systems

2. Basic understanding of working in ERP systems

- Understanding basic terms in ERP systems
- Components of an ERP system
- Navigation in ERP systems
- Introduction to various modules (function areas) in ERP systems
- Advantages of implementing ERP systems

3. Other Relevant Information Technology systems

4. Use of remote sensing and GIS in Audit of EI

5. Introduction to Data analytics techniques and data analytics software

6. Use of Data analytics software for audit risk assessment, audit analysis, audit evidence, and Computer Aided Audit Techniques (CAAT)

7. Challenges and opportunities for Audit in the Information Technology Systems environment

- Use of Artificial Intelligence and machine learning
- Cyber Security

8. Audit Planning considerations in Information Technology Systems environment

- Risk Assessment
- Recommendations to respond to identified risks

Duration: 2 days for SAI Management, 3 days for Operational staff

MODULE 10:

ACCOUNTING STANDARDS IN THE EXPLORATION FOR AND EVALUATION OF MINERAL RESOURCES

Module Background:

Extractive Industries sector accounting is a specialized area that demonstrates many theoretical problems. Standard setting in this area has been the subject of controversy for nearly four decades. This module examines the process undertaken by FASB in developing an accounting standard to the current IASB efforts in coming up with IFRS 6 - Exploration for and Evaluation of Mineral Resources. The module explores the accounting issues along the oil & gas and mineral value chain. A comparison is made between the requirements of each standard on recognition, valuation and disclosures of exploration expenses, reserves and inventories. Where gaps exists in the standards, there is further guidance issued by industry experts such as the United Kingdom Standard Operating Accounting Procedures (SOAPs), United States Council of Petroleum Accounting Society (COPAS).

Further, the application of the System of Environmental Economic Accounting (SEEA) framework of the Statistics Division of the Department of Economic and Social Affairs of the United Nations for extractive Industries needs to be emphasized as well as IFRS S1 on General Requirements for Disclosure of Sustainability and IFRS S2 on Climate related Disclosures.

This module will acquaint auditors with the accounting knowledge necessary to assess reported figures in financial statements of extractive companies and the skills to audit National Oil Companies.

Course Content:

1. Introduction

- Standard setting procedures
- Challenges in development of a global standard for the EI sector and current initiatives
- Comparisons of the FASB and IFRS

2. Scope and Recognition

- Scope of the IFRS, FASB, UK SOAP, COPAS, SEEA and IPSAS
- Recognition of Exploration and Evaluation (E&E) costs under each
- Accounting policy – Successful Costing vs Full Costing, Area of Interest method
- Reserves valuation and recognition
- Decommissioning provisions
- Changes in policy

3. Classification

- Classification of Exploration and Evaluation (E&E) – Tangible or Intangible
- Cash flows and measurement, revaluation

4. Impairment Review

- Impairment indicators for Exploration and Evaluation assets
- Cash Generating Unit (CGU) classifications

5. Farm-in and Farm-out accounting

6. Disclosures under the various standards

Duration: 3 days for SAI Management, 5 days for Operational staff

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