



## ACRONYMS AND GLOSSARY OF EXTRACTIVE INDUSTRIES TERMS

## LIST OF ACRONYMS

<b>AF</b>	Alternative Funding
<b>AFS</b>	Audited Financial Statement
<b>AGO</b>	Automotive Gas Oil
<b>ASM</b>	Artisanal and Small-scale Mining
<b>ASMD</b>	Artisanal and Small-scale Mining Department
<b>API</b>	American Petroleum Institute (measurement for 'heaviness' of crude)
<b>BBL</b>	Barrels
<b>Bbl/d</b>	Barrels Per Day
<b>BIS</b>	Bank for International settlement
<b>BL</b>	Bill of Lading
<b>BO</b>	Beneficial Ownership
<b>BOD</b>	Banking Operations Department
<b>BOJ</b>	Best of Judgement
<b>BPD</b>	Barrels Per Day
<b>BSW</b>	Basic Sediments and Water (amounts of contaminants in crude)
<b>BTU</b>	British Thermal unit
<b>CAs</b>	Carry Agreements
<b>CAPEX</b>	Capital Expenditure
<b>CBN</b>	Central Bank of Nigeria
<b>CCC</b>	Carry Capital Cost
<b>CE</b>	Covered Entity
<b>CGT</b>	Capital Gains Tax
<b>CIT</b>	Company Income Tax
<b>CIT</b>	Company Income Tax Act
<b>COMD</b>	Crude Oil Marketing Division of NNPC
<b>COSM</b>	Crude Oil Stock Management
<b>CRF</b>	Consolidated Revenue Fund
<b>CT</b>	Contract Transparency
<b>DPK</b>	Dual Purpose Kerosene
<b>DPR</b>	Department of Petroleum Resources
<b>E&amp;P</b>	Exploration and Production
<b>ECA</b>	Excess Crude Account
<b>ECOWAS</b>	Economic Community of West African States
<b>EDT</b>	Education Tax
<b>EEZA</b>	Exclusive Economic Zone Act
<b>EI</b>	Extractive Industry
<b>EIA</b>	Environmental Impact Assessment

<b>EIC</b>	Extractive Industry Company
<b>EITI</b>	Extractive Industries Transparency Initiative
<b>EL</b>	Exploration Licence
<b>ERP</b>	Enterprise Resource Planning
<b>FAAC</b>	Federation Accounts Allocation Committee
<b>FCT</b>	Federal Capital Territory
<b>FGN</b>	Federal Government of Nigeria
<b>FIRR</b>	Financial Internal Rate of Return
<b>FIRS</b>	Federal Inland Revenue Service
<b>FMF</b>	Federal Ministry of Finance
<b>FMOE</b>	Federal Ministry of Environment
<b>FRB</b>	Federal Reserve Bank
<b>GED F &amp; A</b>	Group Executive Director Finance & Admin (NNPC)
<b>GEUS</b>	Geological Survey of Denmark and Greenland
<b>GGM</b>	Group General Manager (NNPC)
<b>GMD</b>	Group Managing Director (NNPC)
<b>GRC</b>	Gas Regulatory Commission
<b>GSA</b>	Gas Sales Agreement
<b>GSV</b>	Gross Standard Volume
<b>IOC</b>	International Oil Company
<b>IPP</b>	Independent Power Producer
<b>ITA</b>	Investment Tax Allowance
<b>JDA</b>	Joint Development Authority
<b>JDZ</b>	Joint Development Zone
<b>JOA</b>	Joint Operating Agreement
<b>JV</b>	Joint Venture
<b>JVAFA</b>	Joint Venture Alternative Funding Arrangement
<b>JVCC</b>	Joint Venture Cash Call
<b>KRPC</b>	Kaduna Refinery and Petrochemical Company
<b>LNG</b>	Liquefied Natural Gas
<b>LOC</b>	Local Oil Company
<b>LPFO</b>	Low Pour Fuel Oil
<b>LPG</b>	Liquefied Petroleum Gas
<b>LR</b>	Long Residue
<b>LSM</b>	Large Scale Mining
<b>MAN</b>	Miners Association of Nigeria
<b>MCA</b>	Modified Carried Agreement
<b>MCO</b>	Mining Cadastre Office
<b>MDTF</b>	Multi-Donor Trust fund

<b>MECD</b>	Mines Environmental Compliance Department
<b>MID</b>	Mines Inspectorate Department
<b>MMBTU</b>	Millions British thermal unit
<b>MMSCFD</b>	Million Standard Cubic Feet per Day
<b>MMSD</b>	Ministry of Mines and Steel Development
<b>MOR</b>	Miscellaneous Oil Revenue
<b>MOU</b>	Memorandum of Understanding
<b>MPR</b>	Ministry of Petroleum Resources
<b>MSG</b>	Multi-Stakeholder Group
<b>MT</b>	Metric Tons
<b>MV</b>	Merchant Vessel
<b>NAPIMS</b>	National Petroleum Investment Management Service
<b>NCDA</b>	Nigeria Content Development Act
<b>NCDMB</b>	Nigeria Content Development and Monitoring Board
<b>NCS</b>	Nigerian Customs Service
<b>NDDC</b>	Niger Delta Development Company
<b>NEITI</b>	Nigeria Extractive Industries Transparency Initiative
<b>NGC</b>	Nigerian Gas Company
<b>NGL</b>	Natural Gas Liquid
<b>NGRL</b>	National Geosciences Research laboratories
<b>NGSA</b>	Nigerian Geological Survey Agency
<b>NHT</b>	Nigeria Hydro Carbon Tax
<b>NIMG</b>	Nigerian Institute of Mining and Geosciences
<b>NIPEX</b>	Nigeria Petroleum Exchange
<b>NIWA</b>	National Inland Waterways
<b>NLNG</b>	Nigeria LNG Ltd.
<b>NMC</b>	Nigerian Mining Corporation
<b>NNPC</b>	Nigerian National Petroleum Corporation
<b>NPDC</b>	Nigerian Petroleum Development Company
<b>NSWG</b>	National Stake holders working Group
<b>OAGF</b>	Office of Accountant General of the Federation
<b>OML</b>	Oil Mining Lease
<b>OPCO</b>	Operating/Upstream Company
<b>OPEC</b>	Organisation of Petroleum Exporting Countries
<b>OPL</b>	Oil Prospecting License
<b>OPTS</b>	Oil Producers Trade Group
<b>OSP</b>	Official Selling Price
<b>PAYE</b>	Pay As You Earn
<b>PEFMB</b>	Petroleum Equalization Fund Management Board

<b>PEL</b>	Petroleum Exploration License
<b>PHCN</b>	Power Holding Company of Nigeria
<b>PHRC</b>	Porthacourt Refining Company
<b>PIB</b>	Petroleum Industry Bill
<b>PMS</b>	Premium Motor Spirit
<b>PPMC</b>	Petroleum Product Marketing Company
<b>PPRA</b>	Petroleum Products Pricing Regulatory Agency
<b>PPT</b>	Petroleum Profit Tax
<b>PSC</b>	Production Sharing Contract
<b>PSF</b>	Petroleum Support Fund
<b>PTDF</b>	Petroleum Technology Development Fund
<b>QIT</b>	Qua Iboe Terminal
<b>QL (QLS)</b>	Quarry Lease
<b>RL</b>	Reconnaissance Lease
<b>RP</b>	Realisable Price
<b>RMAFC</b>	Revenue Mobilization Allocation and Fiscal Commission
<b>SAP</b>	System Applications Products (NNPC)
<b>SC</b>	Service Contract
<b>SCRPPSD</b>	Special Committee on the Review of Petroleum Products
<b>SDN</b>	Sovereign Debt Note
<b>SDS</b>	Sovereign Debt Statement
<b>SMMRP</b>	Sustainable Management of Mineral Resources Project
<b>SOF</b>	Satellite Oil Fields
<b>SR</b>	Sole Risk
<b>SSML</b>	Small-scale Mining Lease
<b>SWIFT</b>	Society for Worldwide Interbank Financial Transactions
<b>S&amp;T</b>	Shipping and Terminal
<b>TECOM</b>	Technical Committee
<b>TMP</b>	Trial Marketing Period
<b>TOR</b>	Terms of Reference
<b>USD</b>	United State Dollars
<b>VAT</b>	Value Added Tax
<b>VGO</b>	Vacuum Gas Oil
<b>WAGP</b>	West African Gas Pipeline
<b>WB</b>	World Bank
<b>WHT</b>	Withholding Tax
<b>WRPC</b>	Warri Refinery Petrochemicals Company
<b>WUP</b>	Water Use Permit

## GLOSSARY OF TERMS

**Abandon:** To temporarily or permanently cease production from a well or to cease further drilling operations.

**Abandoned well:** A well that is no longer in use; whether dry, inoperable or no longer productive, and the previous operator has intentionally relinquished its interest in the well.

**Acre-Feet:** Unit of volume; one acre of producing formation one foot thick. One acre foot equals 7,758 barrels, 325,829 gallons or 43,560 cubic feet.

**Acreage:** An area, measured in acres that is subject to ownership or control by those holding total or fractional shares of working interests. Acreage is considered developed when development has been completed. A distinction may be made between “gross” acreage and “net” acreage:

- Gross – All acreage covered by any working interest, regardless of the percentage of ownership in the interest.
- Net – Gross acreage adjusted to reflect the percentage of ownership in the working interest in the acreage.

**Aggregation:** The process of gathering financial information under the EITI for public reporting, but without delineating such information on the basis of the individual identity of payors (i.e., individual company names) and/or on the basis of individual payment types (e.g., by category of payment or expense obligation).

**Alternative Fuel:** Methanol, denatured ethanol and other alcohols, separately or in mixtures of 85% by volume or more with gasoline or other fuels, CNG, LPG, hydrogen, “coal derived liquid fuels,” fuels “other than alcohols” derived from “biological materials,” electricity, neat biodiesel, or any other fuel determined to be “substantially not petroleum” and yielding “substantial energy security benefits and substantial environmental benefits.”

**API:** American Petroleum Institute “API Gravity” is a referenced system for the density of crude oils and constituent hydrocarbons. Oil with the least specific

gravity has the highest specific API gravity. The measuring scale is calibrated in terms of degrees API.

**Aquifer:** A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs for that unit to have economic value as a source of water in that region.

**Artisanal Mining:** mining operation that is limited to the utilization of non-mechanized methods of reconnaissance.

**Associated Petroleum Gas:** Mixture of various gaseous hydrocarbons, dissolved in crude oil, which separate out in the production and refining processes (mainly consist of propane and butane). Associated petroleum gas can be used as a fuel and for production of various chemicals.

**Associated Reservoir:** Oil and Gas reservoir with a gas cap. Gas production from these reservoirs is generally restricted in order to preserve the gas cap energy thereby increasing ultimate recovery.

**Audit:** A process of obtaining, verifying, potentially reconciling, and reporting upon information, including in the context of EITI, concerning financial or physical information of relevance to the extractive industries.

**Barrel:** Liquid measure containing 42 gallons.

**BBL, Barrel:** In the energy industry, a barrel is 42 U.S. gallons measured at 60° Fahrenheit.

**BCF:** The abbreviation for billion cubic feet of gas. (See “cubic foot of gas”)

**Biodiesel:** A biodegradable transportation fuel for use in diesel engines that is produce through transesterification of organically derived oils or fats. Biodiesel is used as a component of diesel fuel. In the future it may be used as a replacement for diesel.

**Biomass:** Renewable organic matter such as agricultural crops, crop-waste residues, wood, animal and municipal wastes, aquatic plants; fungal growth, etc., used for the production of energy.

**Bitumen:** Nature mineral pitch, tar or asphalt, which is liquid or semi solid hydrocarbon mixtures soluble in carbon disulphide used interchangeably with hydrocarbon.

**Blasting:** Explosive charges which are made from a mixture of chemicals are used to break up the rock by pressure when they explode. (go bang).

**Blowout:** An uncontrolled flow of gas, oil or other well fluids from the well.

**BO:** Beneficial owner in respect of a company means the natural person(s) who directly or indirectly ultimately owns or controls the corporate entity *-EITI requirements 2.5f(i)*

**Bootlegging:** Mining, especially of anthracite, without the consent of the owner of the mineral rights.

**BOPD:** The abbreviation for barrels of oil per day.

**Bonny Light:** Is a high grade of Nigerian crude oil with high API gravity (low specific gravity), produced in the Niger Delta basin and named after the prolific region around the city of Bonny.

**Bottomhole:** The lowest or deepest part of a well.

**Brent:** In Europe “Brent” is the reference quality of crude from the North Sea. Each market requires reference crudes to compare the prices of different quality products.

**British Thermal Unit (BTU):** A standard unit of measuring heat energy. One BTU represents the amount of heat required to raise one pound of water one degree Fahrenheit (at sea level).

**Bunkers:** Diesel or fuel oil supplied for ship’s engines.

**Butane:** A gas, easily liquefied, recovered from natural gas. Used as a low volatility component of motor gasoline, processed further for a high-octane gasoline component, used in LPG for domestic and industrial applications and used as a raw material for petrochemical synthesis.



**Byproducts:** Useful substances made from the gases and liquids left over when coal is changed into coke.

**Capping:** Covering the rock with material like clay to keep the water and air out.

**Carbon Sequestration:** The absorption and storage of CO<sub>2</sub> from the atmosphere by the roots and leaves of plants; the carbon builds up as organic matter in the soil.

**Carried Interest:** This is an agreement, in which one party agrees to pay a portion of pre-production costs of the other party on a license, in which both own a portion of the working interest. This situation arises when the carried party is either unwilling to bear the risk of exploration or is unable to fund the cost of exploration or development directly.

**Cash Call:** Cash advance required to be paid by each joint venture company to meet the net cash requirement of the joint venture.

**Christmas Tree:** Special pipes and valves placed over an oil or gas well to control (look after) the pressure and to stop the possibility of fire. The Christmas tree lets the Oil and Gas flow into storage tanks.

**Circulate:** To pass from one point throughout a system and back to the starting point. For example, drilling fluid is circulated out of the suction pit, down the drill pipe and drill collars, out the bit, up the annulus, and back to the pit while drilling proceeds.

**Clean Diesel:** An evolving definition of diesel fuel with lower emission specifications, which strictly limit sulphur content to 0.05 weight %.

**Clean Out:** To remove sand, scale, and other deposits from the producing section of the well to restore or increase production.

**COMD:** The Crude Oil Marketing Department (COMD) of the NNPC manages the sale of government equity crude. COMD is also responsible for sales data, and for establishing a representative price for tax purposes for different crude oils based on market realizations.

**Complete a Well:** To finish work on a well and bring it to productive status.

**Compressed Natural Gas (CNG):** Natural gas that has been compressed under high pressures, typically between 2000 and 3600 psi, held in container. The gas expands when released for use as a fuel.

**Concentrate:** Is the substance (stuff) that is left when water is taken out of the solution (chemical mixture).

**Concession:** A grant of access for a defined area and time period that transfers certain rights to hydrocarbons that may be discovered from the host country to a venture.

**Condensate (also called lease condensate):** Liquid hydrocarbon separated from gas production.

**Contained Gold:** The total gold content (tons multiplied by grade) of the material being described.

**Continuous Mining:** Underground mining method using a machine that does the entire coal extracting job, eliminating the traditional four-step cycle of cutting, drilling, blasting and loading. The continuous mining machine moves up to the seam, cuts coal from the solid seam and simultaneously conveys it to a shuttle or conveyor belt for removal from the mine.

**Contractor:** A term usually given to an oil company or a group of oil companies that are partners with technical competence, professional skills, and/or financial ability, and that are willing to explore and exploit a contract area at their own risk in a venture governed by a production sharing contract (PSC). This term differentiates the private oil companies (the contract(s)) from the state oil company, which is usually the other party (concession holder) to the contract. The term can also apply to a company providing services to an oil company or venture.

**Conventional Mining:** An underground mining method involving a series of steps, three of which require special machinery. First, a cutting machine cuts a deep slit along the base of the coal face. Another machine drills holes into the face. Miners load the holes with explosives and set the explosives off. The undercutting along

the bottom of the face causes the shattered coal to fall to the floor where it is retrieved and loaded onto a conveyor belt by a loading machine.

**Core Analysis:** Laboratory analysis of a core sample that may determine porosity, permeability, lithology, fluid content, angle of dip, geological age, and probable productivity of the formation.

**Cost Oil:** A portion of produced oil that the operator applies on an annual basis to recover defined costs specified by a production sharing contract.

**Costs:** Costs are expenditures incurred by an entity in pursuance of its business. The meaning of “costs’ for the purpose of financial reporting may differ from the meaning of fiscal purposes. Capital expenditure is made on behalf of a project for capital items (i.e. assets which will serve for a number of years). Operating expenses are made on behalf of the project for non-capital items (e.g. services, salaries, perishable goods and short-lived assets). Classifications of fiscal costs are defined by the tax or fiscal rules and regulations of a country. Cost classifications for accounting purposes are governed by relevant accounting standards and/or by the terms of a license or joint operating agreement applicable to the operation.

**Cost Recovery:** Under a production sharing agreement, the contractor is allowed to recover costs (investments and operating expenses) out of the gross production stream.

**Crude Oil:** Unrefined liquid petroleum. It ranges in gravity from 9<sup>0</sup>API to 55<sup>0</sup>API and in colour from yellow to black.

**Cutout:** An area of deck grating removed to clear an obstruction or to permit pipes, ducts, columns, and the like to pass through the grating.

**Cuttings:** The fragments of rock dislodged by the bit and brought to the surface in the drilling mud. Washed and dried cuttings samples are analyzed by geologists to obtain information about the formation drilled.

**Cubic Foot of Gas or Standard Cubic Foot of Gas:** As a unit of volume, 1.728 cubic inches. As applied to water, 7.48gallons. As applied to natural gas, the volume of gas, which, when saturated with water vapor at 60<sup>0</sup> and at a pressure of 30 inches of mercury occupies one cubic foot of volume.

**Decommissioning:** Close down a mine and tidy up after mining has finished. This involves taking away buildings and equipment and rehabilitating the mine site area.

**Deep Mine:** An underground coal mine.

**Density:** The mass or weight of a substance per unit volume. For instance, the density of a drilling mud may be 10 pounds per gallon, 74.8 pounds/cubic foot, or 1,198.2 kilograms/cubic meter. Specific gravity, relative density, and API gravity are other units of density.

**Depletion Allowances:** An allowance that is deductible when calculating tax liabilities or when reporting financial profits (depending on the context). It relates to the exhaustion of an asset in the ground. The costs of producing wells and facilities and the costs of leases are gradually written off over the life of an oil field or mineral deposit. The annual depletion allowance is calculated by relating the production for the year to the total producible reserves at the beginning of the year.

**Derrick:** A large load-bearing structure, usually of bolted construction. In drilling, the standard derrick has four legs standing at the corners of the substructure and reaching to the crown block. The substructure is an assembly of heavy beams used to elevate the derrick and provide space to install blowout preventers, casing heads, and so forth.

**Discovery Well:** The first oil or gas well drilled in a new field. The discovery well is the well that is drilled to reveal the actual presence of a petroleum-bearing reservoir, subsequent wells are development wells.

**Dividend:** A payment to a partner or shareholder out of the profit of a company as a return on the investment made.

**Downstream:** This term is used in describing operations performed after those at a point of reference. The activities in the Oil and Gas industry taking place after production including transportation, refining and marketing.

**DPR: Department of Petroleum Resources:** This Nigerian Government Agency is charged with the responsibility of regulation and supervision of all the operations

being carried out under licenses and leases in the Oil and Gas. The operations include the exploration, production and marketing of crude oil and refined petroleum products.

**Drift Mine:** A coal mine entered directly through a horizontal opening.

**Drill:** To bore a hole in the earth, usually to find and remove subsurface formation fluids such as Oil and Gas.

**Dry Gas:** This is natural gas containing insufficient quantities of hydrocarbons heavier than methane to allow their commercial extraction or to require their removal in order to render the gas suitable for fuel use.

**Economic Evaluation:** The company does its sums to see if the project will cost much to run and if they can make money from the project.

**Ecosystem Restoration:** Recovery of the structure, function and processes of the original ecosystem.

**EFCC: Economic and Financial Crimes Commission:** A government antigraft commission that checks money laundering and prosecute all those suspected to be involved in financial crimes.

**EITI: Nigeria Extractive Industries Transparency Initiative:** Is a global initiative which supports improved governance in resource-rich countries through the verification and full publication of company payment and government revenues from oil, gas and mining. EITI is a collision of governments, companies, civil society groups, investors and international organizations.

**EITI Plus Plus:** A reference to a particular type of implementation of the EITI, which can be instituted by an individual country that exceeds the core standards and requirements of the EITI, as defined by the EITI sourcebook, the EITI validation guide, and other applicable resources.

**EITI Sourcebook:** The EITI sourcebook provides guidance about how to become involved in the EITI. The sourcebook was produced by the international EITI secretariat. It is intended to assist countries wishing to implement the EITI and stakeholders wishing to support implementation.

**EPCL: Eleme Petrochemicals Company Limited:** A federal establishment whose mission is to profitably manufacture a range of petrochemical products and to market these products locally and abroad.

**Equity Crude:** The proportion of production that a concession owner has the legal and contractual right to retain.

**Ethanol (also known as Ethyl Alcohol, Grain Alcohol,  $\text{CH}_3\text{CH}_2\text{OH}$ ):** Can be produced chemically from ethylene or biologically from the fermentation of various sugars from carbohydrates found in agricultural crops and cellulosic residues from crops or wood. Used as a gasoline octane enhancer and oxygenate, it increases octane 2.5 to 3.0 numbers at 10% concentration. Ethanol also can be used in higher concentration in alternative-fuel vehicles optimized for its use.

**Ether:** A class of organic compounds containing an oxygen atom linked to two organic groups.

**Etherification:** Oxygenation of an olefin by methanol or ethanol. For example, MTBE is formed from the chemical reaction of isobutylene and methanol.

**Environmental Management Plan (EMP):** Is the company's plan on how it will look after the environment during all stages of mining; construction, mining, processing, decommissioning and rehabilitation.

**Exploration Costs:** The amount of money that is spent on doing exploration work.

**Exploration License Application:** A request (a special note asking) for exploration license, to explore (look) for minerals.

**Exploratory Well:** Any well drilled for the purpose of securing geological or geophysical information to be used in the exploration or development of oil, gas, geothermal, or other mineral resources, except coal and uranium, and includes what is commonly referred to in the industry as "slim hole tests," "core hole tests" or "seismic holes".

**Export/Import Duties:** Duty applied to the export or import of products. Oil and Gas are usually exempt from export duties.

**Extraction Loss:** the reduction in volume and energy content of natural gas resulting from the removal of natural gas liquids constituents.

**Extractive Mineral Lease:** a permit which gives company permission to quarry/mine for extractive minerals, e.g. sand, gravel and soil from an area that has been surveyed.

**Extractive Mineral Permit:** a permit to quarry/mine for any extractive minerals e.g. sand gravel from private land with the land owner's permission included in the application.

**Field:** area of Oil and Gas production with at least one common reservoir for the entire area.

**Fiscalization:** the conversion of a unit of production (e.g. a barrel of oil) into monetary terms. For example, when oil is measured at the wellhead the measured quantity is then priced for purposes of calculating the government's tax or royalty.

**Flaring:** controlled burning of surplus combustible gases in the atmosphere.

**Flow Rate of a Well:** quantity of hydrocarbons obtained from a well in a given period of time (usually one day).

**Flowing Well:** a well that produces Oil and Gas by its own reservoir pressure rather than by use of artificial means (such as pumps).

**Flow Line:** the surface pipe through which Oil and Gas travels from a well to processing equipment or to storage.

**Flow Rate:** the speed, or velocity, of fluid or gas flow through a pipe or vessel.

**Flow Station:** a station from which Oil and Gas travels from a well through the surface pipe to processing equipment or storage.

**Formation Gas:** gas initially produced from an underground reservoir.

**Fuel Cell:** an electrochemical engine (no moving parts) that converts the chemical energy of a fuel, such as hydrogen and an oxidant, such as oxygen, directly to electricity. The principal components of a fuel cell are catalytically activated

electrodes for the fuel (anode) and the oxidant (cathode) and an electrolyte to conduct ions between the two electrodes.

**Fungible:** a term used within the oil refining industry to denote products that are suitable for transmission by pipeline.

**Gas Flaring:** the burning of hydrocarbon gases for commercial or technical reasons.

**Gas-Oil Ratio (G.O.R.):** number of cubic feet of gas produced per barrel of oil.

**Gas Plant:** processes the gas that comes out of the ground through the well. At the gas plant the water that comes out of the ground with the gas is separated and the gas is compressed (squeezed) so it can be transported by pipeline.

**Gas Well:** Any well, 1. Which produces natural gas not associated or blended with crude petroleum oil at the time of production; 2. Which produces more than 100,000 cubic feet of natural gas for each barrel of crude petroleum oil from the same producing horizon; 3. Which produces natural gas from a formation or producing horizon productive of gas only encountered in a wellbore through which crude petroleum oil also is produced through the inside of another string of casing or tubing. A well which produces hydrocarbon liquids, a part of which is formed by a condensation from a gas phase and a part of which is crude petroleum oil, shall be classified as a gas well unless there is produced one barrel or more of crude petroleum oil per 100,000 cubic feet of natural gas; and that the term "crude petroleum oil" shall not be construed to mean any liquid hydrocarbon mixture or portion thereof which is not in the liquid phase in the reservoir, removed from the reservoir in such liquid phase, and obtained at the surface at such.

**Gasification:** any of various processes by which coal is turned into low, medium and high BTU gas.

**Gasohol:** gasohol refers to gasoline that contains 10% ethanol by volume. This term was used in the late 1970s and early 1980s but has been largely replaced by terms such, Super Unleaded Plus Ethanol or Unleaded Plus Ethanol.

**Geological Layers:** layers of different types of rocks.



**Geological Maps:** maps that show the geology of an area of land including the different rocks, soils and sands that are found there.

**Global Warming:** the theoretical escalation of global temperatures caused by the increase of greenhouse gas emissions in the lower atmosphere.

**Gravity:** the force that pulls things to the centre of the earth. The earth's gravity causes things to fall when you drop them.

**Greenhouse Effect:** a warming of the earth and its atmosphere as a result of the thermal trapping of incoming solar radiation by CO<sub>2</sub>, water vapour, methane, nitrous oxide, chlorofluorocarbons and other gases, both natural and man-made.

**Horizontal Drilling 1:** drill pipes that go down into the ground and enter the rock trapping the oil sideways.

**Hydrocarbons:** organic compounds of hydrogen and carbon whose densities, boiling points, and freezing points increase as their molecular weights increase. Although composed of only two elements, hydrocarbons exist in a variety of compounds, because of the strong affinity of the carbon atom for other atoms and for itself. The smallest molecules of hydrocarbons are gaseous; the largest are solids. Petroleum is a mixture of many different hydrocarbons.

**Hydrocarbon Mass Balance:** this is a technique required for thorough design and analysis of a system. It is the difference between the energy produced by 1 kg of the fuel (i.e. biodiesel, petroleum) and the energy necessary to produce it (extraction (e.g. drilling or cultivation of energetic plants), transportation, refining, etc). Other factors affect fuel selection, such as portability.

**IADC: International Association of Drilling Contractors:** a trade association that represents the interests of members of the drilling segment of the Oil and Gas industry. It offers publications regarding recommended industry practices and training materials.

**IDSL: Integrated Data Services Limited:** this was incorporated in 1988 as one of the eleven Subsidiary Companies of the Nigerian National Petroleum Corporation (NNPC) to offer Geophysical and Petroleum Engineering Services in the Upstream sector of the oil industry. It inherited facilities of the National Hydrocarbon

Reserves Evaluation Centre (NHREC), the Seismic Data Processing outfit (DPD) and the 2-D seismic acquisition crews then known as Seismic Party Y. the functions of these former outfits were taken over by IDSL. IDSL is a service company that represents the NNPC in the service sector of the Oil and Gas industry.

**Indicated Mineral Resource:** an 'indicated mineral resource' is that part of Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

**Inferred Mineral Resource:** an 'inferred mineral resource' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological.

**Injection Gas:** 1. A high-pressure gas injected into a formation to maintain or restore reservoir pressure. 2. Gas injected in gas-lift operations.

**In-kind Payments:** payments made to a government (e.g. royalty) in the form of the actual commodity (e.g. oil, gas, minerals) instead of cash.

**International Accounting Standards:** the internationally accepted standards for financial reporting as issued by the International Accounting Standards Board. The application of these standards in each country is a matter for the relevant regulatory organization of that country.

**International Auditing Standards:** the internationally accepted standards for financial reporting as issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants. The application of these standards in each country is a matter for the relevant regulatory organization of that country.

**Jig:** A machine in which ore is concentrated or coal is separated from slate, on a screen or sieve in water by a reciprocating motion of the screen, or by the propulsion of water through the screen.

**Jigging:** separating ores according to specific gravity with a sieve agitated up and down in water. The apparatus is called a jig or jigger.

**Joint of Pipe:** a length of drill pipe or casing. Both come in various lengths.

**Joint Venture:** a group of companies which can include a state company, that have joined together to conduct explorations and prospectively exploit minerals or hydrocarbons under a specified area under the terms of an agreed contract.

**Kick off** – 1. To bring well into production; used most often when gas is injected into a gas lift well to start production. 2. In work over operations, to swab a well to restore it to production. 3. To deviate a wellbore from the vertical, as in directional drilling.

**Kill** – in drilling, to control a kick by taking suitable preventive measures (for example, to shut in well with the blowout preventers, circulate the kickout, and increase the weight of the drilling mud). 2. In production, to stop a well from producing Oil and Gas so that reconditioning of the well can proceed.

**Kimberely process:** The Kimberely process (KP) is a joint government, industry and civil society initiative to stem the flow of conflict diamonds- rough diamonds used by rebel movements to finance wars against legitimate governments.

**KRPC:** Kaduna Refining and petrochemical Company: This was commissioned in 1980 as NNPC Refinery Kaduna. Its initial capacity was 100,000 Barrels Per Stream Day (BPSD). As the third Refinery in the country, it was established to cope with the growing demand for petroleum products, especially to cope with the growing demand for petroleum products, especially in the Northern part of the country.

**Land Rig:** Any drilling rig hat is located on dry land.

**Land Restoration:** Fixing up the land that has been mined to make sure it is safe for people and wild life.

**Land Use:** How the land is used, e.g mining, conservation, farming and recreation sports and fun).

**Land Shape:** The shape of the land, e.g hills, mountains, flood plains, desert, valleys, lakes.

**Land Slides:** A lot of earth and rock breaking off and sliding down the side of a pit  
latch on: to attach elevators to a section of pipe to pull it out of or run into the hole.

**Leaching:** Slow passage of a solvent through a layer of porous or crushed material in order to extract valuable components; for example, gold can be extracted by heap leaching a porous ore or pulverized tailings.

**Letter of Approval for Substantial Disturbance:** Permission for a company to do activities of substantial disturbance, e.g drilling, grading, costeaning.

**Life of Mine (LOM):** Number of years that the operation is planning to mine and treat ore, and is taken from the current mine plan.

**Liquid Natural Gas (LGN):** Is natural gas that has changed into liquid by cooling to  $-162^{\circ}\text{C}$  so it can be transported in special tankers.

**Liquid Petroleum Gas (LPG):** Is made from natural gas and is stored in strong steel gas bottles. LPG is used for gas stoves and some taxis use it instead of petrol.

**Liquefaction:** Converting Coal into synthetic liquid fuel, similar in nature to crude oil and/ or refined products such as gasoline.

**Liquefied Natural Gas (LNG):** Is natural gas (primarily methane,  $\text{CH}_4$ ) that has been converted to liquid form for easy of storage or transport.

**Liquefied Petroleum Gas (LPG);** A mixture of hydrocarbons found in natural gas and produced from crude oil, used principally as a feed stock for the chemical industry, home heating fuel, and motor vehicle fuel. Also known as the principal constituent of propane.

**Local Content:** The Local Content development is an initiative on the part of the Nigerian Government to help develop local capacity building in the Nigerians participates actively.

**Manufactured Gas:** A mixture of gaseous hydrocarbons produced from coal or oil; not discussed in this volume, which excludes manufactured products.

**Mapping of Financial Flows:** A mapping of financial flows is a simplified illustration that traces payments to show which entity makes the payments and which entity receives them. It is a helpful tool for understanding how money is exchanged between companies and government agencies in the extractive industry of a country.

**Marginal Fields:** A field that may not produce enough net income to make it worth developing at a given time; should technical or economic conditions change, such a field may become commercial .

**Mast:** A portable derrick that is capable of being raised as a unit, as distinguished from a standard derrick, which cannot be raised to a working position as a unit. For transporting by land, the mast can be divided into two or more sections to avoid excessive length extending from truck beds on the highway.

**Modified Carry Agreement (MCA):**

**MCF:** One thousand cubic feet of natural gas measured at standard pressure and temperature conditions (see “cubic foot of gas”).

**Memorandum of Understanding (MOU):** A contract between the government of Nigeria and various joint ventures that provides for an alternative fiscal regime.

**MEND; Movement for the Emancipation of Niger Delta:** A militant regional group in Nigeria claiming to fight for the freedom, protection and justice for the people of the oil-rich Niger Delta.

**Methane (CH<sub>4</sub>):** The simplest of the hydrocarbons and the principal constituent of natural gas. Pure methane has a heating value of 1,012 Btu per standard cubic foot.

**Methanol (also known as Methyl Alcohol, Wood Alcohol, CH<sub>3</sub>OH):** A liquid fuel formed by catalytically combining CO with hydrogen in a 1:2 ratio under high temperature and pressure. Commercially, it is typically manufactured by steam reforming natural gas. Also formed in the destructive distillation of wood.

**Mine Plan (MP):** What the company plans to do at the mine.

**Mineral:** A substance produced by the processes of inorganic nature; often extended to certain substances of organic origin got by mining such as coal or amber.

**Mineral claim (MC):** A permit which gives a company permission to prospect and mine for minerals, or explore for extractive minerals (sand, gravel)

**Mineral Deposit:** A mineral deposit is a concentration (or occurrence) of material of possible economic interest in or on the Earth's crust.

**Mineral Lease:** A permit which gives a company permission to mine for minerals and to build a mine and all the equipment necessary for mining. The area of the lease must be surveyed (measured and mapped).

**Mineral Price:** Is the international (world) price for a specific mineral, e.g. gold price.

**Miner's Right:** Permission to prospect (look for) minerals and apply for an exploration and mining licenses.

**Mining:** the process of extracting solid minerals / natural resources from the shallow parts of the earth's crust.

**Miscible Drive:** A method of enhanced recovery in which various hydrocarbon solvents or gases (such as propane, LPG, natural gas, carbon dioxide, or a mixture thereof) are injected into the reservoir to reduce interfacial forces between oil and water in the pore channels and thus displace oil from the reservoir rock. See chemical flooding, gas injection.

**Mixing Tank:** any tank or vessel used to mix components of substances (as in the mixing of additives with drilling mud).

**MMBO:** Million barrels of oil.

**MMCF:** One million cubic feet.

**Multi-Stakeholders Group (MSG):** A group made up of private sector, independent civil society representatives, and relevant senior government leaders that oversee the EITI effort in a country.

**NAPE: Nigerian Association of Petroleum Explorationists:** Is a professional association of Oil and Gas activities in Nigeria.

**NAPIMS: National Petroleum Investment Management Service:** Is the upstream arm of NNPC that over sees the federation investments in the joint Venture Companies (JVCs), Production Sharing Companies (PSCs) and service contract companies (SCs).

**National Association of Testing Authorities (NATA):** Is an association that sets the highest standards.

**Natural Gas or Gas:** A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases in porous formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.

**Natural Gas liquids, NGL:** Hydrocarbon liquids extracted from natural gas.

**Natural Gasoline:** Gasoline manufactured from casing head gas or from any natural gas

**NNCD: Niger Delta Development Commission:** a federal government agency established to facilitate the infrastructural development of the Niger Delta region.

**Neat Alcohol Fuel:** straight or 100% alcohol (not blended with gasoline), usually in the form of either ethanol or methanol.

**Neat Fuel:** Fuel that is free from admixture or dilution with other fuels.

**NEITI: Nigeria Extractive Industries Transparency Initiative:** Is mandated by law to promote transparency and accountability in the management of Nigeria oil, gas and mining revenues. A major component of the on-going anti-corruption reform

in Nigeria, it is the national version of the EITI, which is a global movement aimed at ensuring that extractive resources aid sustainable development.

**NETCO: National Engineering and Technical Company Limited:** This was established in 1989 to acquire Engineering Technology through direct involvement in all aspect of Engineering in the Oil and Gas and non-oil sectors of the economy. NECTO is Nigeria's premier indigenous Engineering Company with the strategic vision of providing Basic/Detailed Engineering, Procurement, construction Supervision and Project Management services, using state-of-the-art Technology. It was a JV between Nigerian National Petroleum Corporation (NNPC) and American Bechtel, inc.

**NGC: Nigerian Gas Company Limited:** This was established in 1988 as one of the 11 subsidiaries of the Nigerian National Petroleum Corporation (NNPC). It is charged with the development of an efficient gas industry to fully serve Nigeria's energy and industrial feedstock needs through an integrated gas pipeline network and also to export natural gas and its derivatives to the West African Sub-region.

**Nigerian Content:** Is defined as the quantum of composite value added or created in the Nigerian economy through the utilisation of Nigerian human and material resources for the provision of goods and services to the petroleum industry within acceptable quality, health, safety and environmental standards in order to stimulate the development of indigenous capabilities.

**NLNG: Nigeria Liquefied Natural Gas:** Is a joint venture for liquefied natural gas production. Shell has a share of 25.6% in this company and is also its technical adviser. Other partners are Nigerian National Petroleum Corporation (49%), Total (15%) and Eni (10.4%).

**NMGS: Nigeria Mining and Geosciences Society:** A professional organisation that provides a forum for discussing various topics within the ambits of the mining, geosciences and allied professions.

**NNPC: National Petroleum Corporation:** A Federal government Oil Company overseeing the exploration, production and marketing of crude oil and its products in Nigeria.



**Non Association Gas:** this is natural gas found in a natural reservoir that does not contain crude oil.

**NOSDRA: National Oil Spill Detection and Response Agency:** A Federal government agency responsible for the early detection of oil spillage and its remediation.

**Notice of Intent (NOI):** Is the first stage of environmental assessment (checking) process. It is a short explanation of the mining project that the company wants to do. It includes maps, photographs, plans and an explanation of the environmental problems that may happen. No mining work can begin until the NOI has been checked and is OK.

**NPDC: Nigerian Petroleum Development Company:** A subsidiary of NNPC, whose primary responsibility is oil exploration and production.

**NSWG:** National Stakeholders Working Group- The board of NEITI

**NUPENG:** The National Union of Petroleum and Natural Gas Workers (NUPENG) is one of the 29 industrial unions currently affiliated to the Nigeria Labour Congress. It was also one of the former 42 industrial unions before the restructuring exercise of 1976/1977 in which various trade unions were merged to form NUPENG. The unions includes: shell D'Arcy Workers Union, Esso Workers' Union, Union of Shell Operations, Petroleum Tanker Drivers Union.

**Octane Rating (Octane Number):** A measure of a fuel's resistance to self ignition, hence a measure as well of the antiknock properties of the fuel.

**OEM:** Original Equipment Manufacturer.

**Offshore Well:** oil well drilled in the deepwater.

**Oil and Gas Fields:** Area of land where Oil and Gas is found.

**Oilfield:** The surface area overlying an oil reservoir or reservoirs. The term usually includes not only the surface area, but also the reservoir, the wells, and the production equipment.

**Oil in Place:** estimation of real amount of oil in a reservoir. Higher value than recoverable reserves of reservoir.

**Oil Mud:** A drilling mud, such as, oil-base mud and invert-emulsion mud, in which oil is the continuous phase. It is useful in drilling certain formations that may be difficult or costly to drill with waterbase mud. Compare oil-emulsion mud.

**Oil Plant:** processes the oil that comes out of the ground through the oil well. At the oil plants small amounts of gas that comes up the oil wells with the oil and is burned off. This type of gas is not used for anything.

**Oil Refinery:** refines the crude oil into useable oils and other products. Oil sand: 1. sandstone that yields oil. 2. (by extension) any reservoir that yields oil, whether or not it is sandstone.

**Oil Saver:** a gland arrangement that mechanically or hydraulically seals by pressure. It is used to prevent leakage and waste of gas, oil, or water around a wireline (as when swabbing in well). Oil spotting: pumping oil, or a mixture of oil and chemicals, to a specific depth in the well to lubricate stuck drill collars.

**Oil String:** the final string of casing set in a well after the productive capacity of the formation has been determined to be sufficient. Also called the long string or production casing.

**Oilwell:** a well from which oil is obtained.

**Oil zone:** a formation or horizon of a well from which oil may be produce. The oil zone is usually immediately under the gas zone and on top of the water zone if all the three fluids are present and segregated.

**OML: Oil Mining Lease:** a legal right to develop and produce hydrocarbons discovered in a specified area for a specified period of time.

**Ongoing Rehabilitation:** rehabilitation work that is being done all the time during each stage of mining.

**Open Cut mine:** is a very large and deep pit dug with excavation equipment that is open to the sky and weather.

**Open-Flow Test:** a test made to determine the volume of gas that will flow from a well during a given time span with minimum restrictions.

**Open-Hole Log:** any log made in uncased or open hole.

**Open Pit:** a surface mine such as quarry, open to daylight; also referred to as open-cut or opencast mine.

**Overburden:** the rock and soil cleared away before mining.

**Operator:** the person or company, either proprietor or lessee, actually operating a well or lease, generally the oil or gas company that engages the drilling, service, and workover contractors.

**OPL: Oil Prospecting Lease:** a legal right to explore for hydrocarbons over a particular area for a specified time period.

**Operator:** an entity, which may be an oil company or group of oil companies that operates an asset on behalf of others. The asset could be an oil field or a number of oil fields. The agreement between the operator and the shareholders is usually governed by a joint operating agreement (JOA).

**Ore Deposit:** rocks that have a lot of minerals in them.

**Ore Reserve:** an 'ore reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessment and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate that at the time of reporting, extraction could reasonably be justified. Ore Reserves are subdivided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

**Organization of Petroleum Exporting Countries (OPEC):** an organization of the countries of the Middle East, Southeast Asia, Africa and South America that produce oil and export it. Update-members as of 2008 are Algeria, Ecuador, Angola, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the

United Arab Emirates, and Venezuela. The organization's purpose is to negotiate and regulate production and oil prices.

**Paraffin's:** group of saturated aliphatic hydrocarbons, including methane, ethane, propane and butane and noted by the suffix "-ane".

**Pay Limit:** the grade of a unit of ore at which the revenue from the recovered mineral content of the ore is equal to the total cash cost including Ore Reserve Development and stay-in-business capital. This grade is expressed as an in-situ value in grams per tonne or ounces per short ton (before dilution and mineral losses).

**PEF: Petroleum Equalization Fund:** a tax enforced by the government to stabilize the price of petroleum products so that it will be accessible to the common man.

**PENGASSAN:** is an acronym for petroleum and natural gas senior staff. PENGASSAN is a trade union for Oil and Gas Senior Staff in Nigeria. PENGASSAN is affiliated to Trade Union Congress and ICEM.

**Permeability:** 1. a measure of the ease with which a fluid flows through the connecting pore spaces of a formation or cement. The unit of measurement is the millidarcy. 2. Fluid conductivity of a porous medium. 3. Ability of a fluid to flow within the interconnected pore network of a porous medium.

**Petroleum:** a substance occurring naturally in the earth in solid, liquid or gaseous state and composed mainly of mixtures of chemical compounds of carbon and hydrogen, with or without other nonmetallic elements such as sulphur, oxygen and nitrogen. In some cases, especially in the measurement of Oil and Gas, petroleum refers only to oil (liquid hydrocarbon) and does not include natural gas or gas liquids such as propane and butane.

**Petroleum Fuel:** gasoline and diesel fuel.

**Phase Separation:** the phenomenon of a separation of a liquid or vapour into two or more physically distinct and mechanically separable portions or layers.

**Phosphate Rock:** a sedimentary rock containing calcium phosphate. Produced almost entirely in Florida and Tennessee, it is used for the manufacture of

superphosphates (fertilizer) and, to a lesser extent, as raw material by the chemical industry.

**PHRC: Port Harcourt Refining Company:** is in business to provide efficient petroleum refining services primarily to the nation, at a minimum cost and the international market at competitive prices, while spearheading the development and production of specialized petroleum products. PHRC Limited is made up of two refineries. The old refinery commissioned in 1965 with current nameplate capacity of 60,000 barrels per stream day (bpsd) and the new refinery commissioned in 1989 with an installed capacity of 150,000 bpsd. This brings the combined crude processing capacity of the Port Harcourt Refinery to 210,000 bpsd. It was five (5) process areas – Areas 1-5. The new refinery is made up of Areas 1-4 while the old refinery is Area 5. Area 1 is made up of the Crude Distillation Unit (CDU) and the Vacuum Distillation Unit (VDU).

**Platinum:** a heavy, almost silver-white metallic element, ductile and malleable, but very infusible and resistant to most chemical reagents. Used in the chemical industry, specially as a catalyst, and for handling corrosive liquids; in the manufacture of electric lamp bulbs, temperature measuring instruments, spark plug electrodes and magneto contacts; and by jewelers and dentists. Some platinum can be recovered from placer mines.

**PMS: Premium Motor Spirit:** this is known as petrol in stock.

**Pollution:** 1. Dirty, dangerous and bad for health like noise, dust, dirty water and dirty air. 2. Unauthorized contamination of surface or subsurface waters or land.

**Porosity:** percentage of the rock volume that can be occupied by oil, gas or water.

**Possible reserves:** possible reserves are those unproved reserve which analysis of geological and engineering data suggests are less likely to be recoverable than probable reserve.

**Posted Price:** The price at which a company will buy or sell a commodity. In markets where an official exchange does not operate, traders will often refer to the posted prices of the major companies trading that commodity. The posted price is similar to a company's bid and ask.

**PPM:** Parts per million.

**PPMC: Pipelines and products marketing Limited:** This was set up to provide excellent customer services by transporting crude oil to the refineries and moving white petroleum products to existing markets. Its mission is to profitably and efficiently market refined petroleum and petrochemical products in the domestic market, as well as in the ECOWAS sub region and provide marine service.

**PPT: Petroleum Profit Tax:** is a taxation of petroleum profit in Nigeria.

**Precipitate:** The solid product of chemical reaction by fluids.

**Probability of success (POS):** In the Oil and Gas industry this is the term usually given to the chance of discovering hydrocarbons during the exploration operations. If, for example, the POS is 10 percent, then the chance of failure, or the probability of not finding any hydrocarbons, is 90 percent.

**Probably Reserves:** Probable reserves are those unproved reserves which analysis of geological and engineering data suggests are more likely than not be recoverable.

**Proved Developed Reserves:** proved reserves are those quantities of petroleum which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be commercially recoverable from a given date forward, from known reservoirs and under current economic conditions, operating methods, and government regulations.

**Process Water:** water out of the treatment plant which has poisonous chemicals in it.

**Processing:** The ways of taking minerals out of the ore.

**Product:** Includes refined crude oil, crude tops topped crude processed crude petroleum, residue from crude petroleum, cracking stock, untracked fuel oil treated crude oil, residuum, casing head gasoline, natural gas gasoline, gas oil, naphtha, distillate, gasoline, kerosene, benzene, wash oil, waste oil, blended gasoline, lubricating oil, blends or mixtures of petroleum and/or any and all liquid

products or by-products derived from crude petroleum oil or gas, whether here in above enumerated or no.

**Production:** **1.** The phase of petroleum industry that deals with bringing the well fluids to the surface and separating them and storing them, gauging , and otherwise preparing the product for delivery. **2.** The amount of oil or gas produced in a given period.

**Production Maintenance:** the efforts made to minimize the decline in a well's production. It includes, for example, acid-washing of casing perforations to dissolve mineral deposits, scrapping or chemical injection to prevent paraffin buildup, and various measures taken to control corrosion and erosion damage.

**Production Rates:** how much end products to the customers want and how quickly can the company mine the ore or rock and extract the end product, e.g. mineral or stone for gravel.

**Production Sharing Contract (PSC):** a petroleum production arrangement in which the contractor bears all costs of exploration and production without such costs being reimbursement if no find is made in the contract area (OPL or OML) and in which the government and contractor are both paid in the resource produced production well: in fields in which improved recovery techniques are being applied, the well through which oil is produced.

**Productivity:** an expression of labour productivity based either on the ratio of grams of gold produced per month to the total number of employees or area mined (in square meters) per month to the total number of employees in underground mining operations.

**Profit Oil:** a quantity of crude oil/gas which remains to be split between the government and contractor after the recovery of costs, through cost oil/gas, and payment of royalty and other taxes (if applicable) under a production sharing contract.

**Profit Split:** under a typical production sharing agreement, the contractor is responsible for the field development and all exploration and development

expenses. In return, the contractor is entitled to a share of the remaining profit oil or gas. This entitlement could be in cash or in kind.

**Project Capital:** capital expenditure to either bring a new operation into production; to materially increase production capacity; or to materially extend the productive life of an asset.

**PSI (Pound Per Square Inch):** an English system of measure of the amount of pressure on an area that is 1 inch square.

**PSIA:** pounds of pressure per square inch absolute, using absolute zero as a base.

**PSIG:** pounds of pressure per square inch gauge, using atmospheric pressure as a base.

**PTDF: Petroleum Technology Development Fund:** The Petroleum Technology Development Fund (PTDF) is a Parastatals of the Ministry of Petroleum Resources established by Degree 25 of 1973 dedicated for the purpose of development, promotion and implementation of petroleum technology and manpower development through research and training of Nigerians as graduates, professionals, technicians and craftsmen in the fields of engineering, geology, geosciences, management, economics and relevant fields in the petroleum and solid minerals industry in Nigeria or abroad.

**Public Environmental Report (PER):** is the second stage of the Environmental Assessment (checking) process. If the NOI shows that the mining project will cause environmental impact (problems) that could cause some worry, the company must write a PER following set guidelines which explains the mining project, the possible environmental problems and how the company will look after the environment and prevent (stop) environmental problems. The public and government departments may read the draft (first) PER and make comments about it. No mining work can begin until the PER is OK.

**Quality Control:** means testing all products all the time to make sure that they are always good.

**Quarry:** is a small open-cut mine where large amounts of non-metallic rock are dug or blasted out of the ground. These rocks are only cut or crushed, e.g. for tiles



or gravel. No chemicals or water are used during the mining and processing stages.

**Realizable Price:** realizable price is the price that can be derived from the fair exchange of an asset(s) less the costs incurred in making the exchange.

**Reconciliation:** a sufficient explanation of the difference between two figures.

**Recovery Factor:** the percentage of petroleum resources originally contained in a field which can be recovered through production.

**Refined:** separate crude oil into useable oil and other products such as petrol, diesel, kerosene, jet fuel, wax, lubricating oil and bitumen.

**Refinery:** any plant where a crude substance, especially petroleum, is purified.

**Refinery Margin:** the difference between the wholesale cost of gasoline (estimated by prices at which it is sold in large quantities to retailers or sellers) and the cost of crude oil.

**Refinery Net-Back Valuation:** the value of crude oil based on the products it yields in the refinery.

**Refining:** the final purification process of a metal, mineral or crude oil.

**Regulator:** the government official or organization lawfully specified as having the responsibility to administer rules and regulations. A regulator might have authority to develop and issue rules.

**Relinquishment:** when a contractor may be required to relinquish a portion of the contract area say, at the end of the exploration period.

**Reserves:** those quantities of hydrocarbons which are anticipated to be commercially recovered from known accumulations.

**Reservoir:** a porous, permeable sedimentary rock containing commercial quantities of Oil and Gas.

**Residue Gas:** gas remaining after processing and extraction of NGL.

**Return on Investment:** the income that an investment produces for each unit (e.g. dollar) of capital invested. If US\$1million invested produces US\$100,000 per year that is a 10% return on investment.

**Revised Government Take:** royalty and petroleum profit tax as modified by the memorandum of understanding.

**Rig:** a derrick, with its engine house, etc.; used for boring, and afterwards pumping, an oil well. The term refers also to the derrick itself.

**Ring Fencing:** when a contract is ring fenced, the company cannot offset the income of one contract with losses from another contract.

**Royalty:** royalty refers to payments that may be due to the host government, mineral owner, or land owner, in return for the producer having access to the petroleum.

**Service Contract:** A petroleum production arrangement under which the OPL title is held by one party, and the operator is designated the service contractor and provides funds required for exploration and production work over a period of time (e.g. five years of which the contractor is paid by installment as agreed in the contract irrespective of the result of the exploration).

**Shut In:** 1. to close the valves on a well so that it stops producing. 2. To close in a well in which a kick has occurred.

**SPDC: Shell Petroleum Development Company:** is the largest fossil fuel company in Nigeria, which operates over 6, 000 kilometers (3,700 mi) of pipelines and flowlines, 87 flow stations, 8 natural gas plants and more than 1,000 producing wells. SPDC's role in the Shell Nigeria family is typically confined to the physical production and extraction of petroleum. It is an operator of the joint venture, which composed of Nigerian National Petroleum Corporation (55%), shell (30%), Total S.A (10%) and Eni (5%). Until relatively recently. It operated largely onshore on dry land or in the mangrove swamp.

**Solution Gas:** gas which is dissolved in oil in the reservoir under pressure.

**Spot Market:** short term, non regulated, arms length contract sales of natural gas, crude oil, refined products, or liquid petroleum gas.

**Stakeholders:** members of the government, civil society, and private sector affected by the extractive industry in a country.

**Storage Gas:** a gas that is stored in an underground reservoir. (see underground hydrocarbon storage).

**Storage Tank:** tank for the accumulation of oil pending transferral to a pipeline company or other purchaser.

**Substandard Acreage:** amount of acreage that is less than the standard amount for a proration unit for a field.

**Sweet Gas:** all natural gas except sour gas and casinghead gas.

**Tar:** a thick brown-to-black viscous liquid, obtained by the distillation of wood, coal peat and other organic materials.

**Tax Inversion:** a provision in the 2000 MoU which is to provide an incentive for companies to control operating costs.

**Tenement:** a title of land including exploration titles, mining titles and extractive mineral permits.

**Terminal:** a land-based facility which receives and stores crude oil and other products from offshore oil production. Crude oil (qv) is transported to the terminal by ship or pipeline.

**Ther m:** a unit of heat equivalent to 100,000 British Thermal Units (BTU).

**Title:** have ownership of land to do specific work, e.g. mining title, exploration title.

**Title Holder:** the company that owns the license or permit.

**Tolerance Acreage:** small amounts of acreage assigned to a proration unit after the unit is already established.

**Total Depth (TD):** the maximum depth reached in a well.

**Underground Hydrocarbon Storage:** the use of sub-surface geologic formations for storing liquid, liquefied and gaseous hydrocarbons, such as natural gasoline, propane and natural gas.

**Unitization:** this is a process whereby owners of adjoining properties allocate reserves, production, costs, etc.

**Upstream:** the exploration and production phases of the Oil and Gas industry.

**Vein:** an occurrence of ore, usually disseminated through a gangue, and having a more or less regular development in length, width and depth. When metalliferous, a vein is described as a lode.

**Vertical Seismic Profiling (VSP):** a seismic exploration method, which details structure of the space around the well, defines the nature of geological sections, which are penetrated, and provides a speed model of the environment and level of oil saturation in strata. VSP is carried out by creation of waves on the surface, which are captured in the well by seismic receptors placed at various depths, and by subsequent study of the results.

**Well:** the hole made by the drilling bit, which can be open, closed, or both. Also called borehole, hole, or wellbore.

**Well Head:** the equipment installed at the surface of the wellbore. A well head includes such equipment as the casing head and tubing head.

**Work Plan:** the work that a company or an organization plans to do.

**Yield:** the amount of valuable mineral or metal recovered from each unit mass of ore expressed as ounces per short ton or grams per metric tonne.

**Zinc:** a bluish-white, crystalline, metallic substance, used chiefly for galvanizing and the manufacture of brass.

**Zone:** interval of subsurface formation.



**CRUDE OIL PRODUCTION PLATFORM**



**GAS FLARING**



**GAS PROCESSING PLANT**



**WELL HEAD**



**MINERS AT MINING SITE**



**MINING SITE**