THE RESOLUTION OF DISPUTES UNDER PETROLEUM PRODUCTION SHARING AGREEMENTS

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I. INTRODUCTION

In most countries, natural resources below the soil and offshore are owned by the government.[1] In the Middle East, for example, natural resources are generally owned by the relevant state.[2] In India, offshore minerals are owned by the central government[3] while onshore minerals are owned by the states.[4]

As a result of the extremely high costs, high risks, environmental issues, and human rights concerns involved in the exploration of oil and gas, most states have created national oil companies ["**NOCs**"] to manage their upstream requirements. NOCs then enter into commercial agreements with private or international petroleum companies in order to assist with their upstream, downstream, and midstream needs.[5] Upstream activities (a stage characterized by high investment capital, high risks, and intensive technology) involve primarily exploration, appraisal, development, drilling, production, and decommissioning; downstream activities include refining, processing, distributing, and marketing the petroleum products to the consumers; and midstream activities involve transportation between initial production and end user, which includes infrastructure necessary to transport these resources over long distances.[6]

States have used different types of granting agreements over the years to regulate the exploration and production of their petroleum resources. An early form of a granting agreement was a concession agreement. Concession agreements trace their origins to the United States. Under a concession agreement, the state essentially concedes control over its petroleum resources to a petroleum company through a contract, permit, license, or other

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[1] Volker Lehmann, '*Natural Resources, the Extractive Industries Transparency Initiative, and Global Governance*', THE HAGUE INSTITUTE FOR GLOBAL JUSTICE, July 2015 https://eiti.org/documents/natural-resources-extractive-industries-transparency-initiative-and-global-governance.

[2] Thomas Snider, Khushboo Shahdadpuri and Aishwarya S. Nair, '*Energy Arbitration in the Middle East'*, GAR, 26 May 2021 https://globalarbitrationreview.com/review/the-middle-eastern-and-african-arbitration-review/2021/article/energy-arbitrations-in-the-middle-east.-

[3] Constitution of India, Article 297.

[4] *Id*, Article 294 and 295.

[5] *Supra* note 2.

[6] DW Insights, '*Upstream, Midstream, and Downstream in Oil and Gas Operations*', 1 June 2021 https://www.dwenergygroup.com/upstream-midstream-and-downstream-in-oil-and-gas-operations/.

legal instrument.[7] Title to petroleum is transferred and owned by the petroleum company upon extraction. The petroleum company is granted long-term, uninterrupted, and exclusive exploration rights over a large defined area of the host country to undertake, at its sole risk, exploration and production activities. An example of an early concession is the concession agreement between Petroleum Concession Limited (a UK-based company) and the Sultan of Muscat and Oman, which was entered into in 1937 for a period of 75 years.[8]

Over time, however, host countries sought to retain more control over their resources and, as a result, Petroleum Productions Sharing Agreements ["**PSAs**"] began to emerge. Early forms of PSAs emerged in Bolivia in the 1950s and Indonesia in the 1960s, and PSAs have been preferred over concession agreements since that time.[9] As discussed further below, under a PSA, the host country retains ownership over and the right to exploit resources with the petroleum company acting more akin to a contractor hired to perform the operations. Title to the extracted petroleum remains with the host country, and the PSA grants rights to the petroleum company to recover its costs from production (cost oil) before dividing the remaining production between the host country and the petroleum company (profit oil). PSAs are most common in Asia and Africa.[10]

Other types of granting agreements include service agreements, or risk service agreements ["**RSAs**"], which are popular in Latin America, and licenses, which are common in Europe.[11] Similar to PSAs, RSAs establish a scenario in which the host state retains ownership of the resources and production, and the contractor typically provides the funds required for the exploration and development of petroleum resources. The host state will allow the contractor to recover its cost through the sale of a certain percentage of the oil and gas once the project is successful and will also pay the contractor a fee based on a percentage of the revenues.[12] The main difference between a PSA and a RSA lies in the fact that in a RSA the oil company is paid a flat fee for its services and entails no element of exploration risk, while with PSAs,

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[7] Paul M Blyschak, '*Arbitrating Overseas Oil and Gas Disputes: Breaches of Contract Versus Breaches of Treaty*', 27 JIA, 6, 579, 581 (2010).
[8] Adam Powell, '*Understanding Petroleum regimes in the MENA region*', Al Tamimi Law Update, February 2018 https://www.tamimi.com/law-update-articles/understanding-petroleum-regimes-mena-region/.
[9] Kirsten Bindermann, '*Production-Sharing Agreements: An Economic Analysis*', OXFORD INSTITUTE FOR ENERGY STUDIES, October 1999 https://www.oxfordenergy.org/publications/production-sharing-agreements-an-economic-analysis/.
[10] *Id.*
[11] J William Rowley, Doak Bishop and Gordon Kaiser, '*The Guide to Energy Arbitrations*', GAR, 2nd Edition, Overview, Pg. 3 (2017).
[12] *Id,* Overview, Pg. 10.

the oil company is the sole bearer of the financial risk of exploration.[13] Licences, on the other hand, entitle an oil company to operate in a specific geographical area in exchange for a royalty or fee;[14] the government has policing powers over the licensee, and the licence can typically be revoked for various reasons.[15]

II. PRODUCTION SHARING AGREEMENT AND THEIR BASICS

Under a PSA, the state, as the owner of the resources, engages a petroleum company as a contractor to provide technical and financial services for exploration and development operations, often in an undeveloped, prospective territory. A PSA is typically a long-term contract of 20 or more years[16] where the oil company is granted the right to explore, appraise, develop, and produce petroleum within a designated territory. The petroleum company carries all of the costs and, effectively, the entire exploration risk. If no petroleum is found within a pre-determined period, then the company receives no compensation and relinquishes its rights to the block. The petroleum company typically acquires an entitlement to a stipulated share of the petroleum produced as a reward for the risk taken and services rendered. The host state, however, remains the owner of the petroleum produced subject only to the contractor's entitlement to its share of production.[17]

In a basic PSA, the petroleum company is expected to pay a royalty on gross production to the government. For example, under the Uganda Model PSA, the licensee shall pay to the government 12.5% royalty where the gross total daily production in barrels of oil per day (bopd) exceeds 7,500.[18] After the royalty is deducted, the petroleum company is entitled to a pre-specified share (e.g., 40 percent) of production for cost recovery, which is typically referred to as cost oil. The remainder of the production, so-called profit oil, is then shared between government and the petroleum company at a stipulated share (e.g., 65 percent for the

[13] Kirsten Bindermann, '*Production-Sharing Agreements: An Economic Analysis*', Oxford Institute for Energy Studies, October 1999 https://www.oxfordenergy.org/publications/production-sharing-agreements-an-economic-analysis/.
[14] J William Rowley, Doak Bishop and Gordon Kaiser, '*The Guide to Energy Arbitrations*', GAR, 2nd Edition, Overview, Pg. 10 (2017).
[15] CMS Law-Now, '*Revocation of production licence on an insolvency event*', 24 February 2009 https://www.cms-lawnow.com/ealerts/2009/02/revocation-of-production-licence-on-an-insolvency-event?cc_lang=en.
[16] See, e.g., Art. 11.5 India Model PSC 2005, "The Lease shall be granted for an initial period of twenty (20) years from the date of grant…".
[17] J William Rowley, Doak Bishop and Gordon Kaiser, '*The Guide to Energy Arbitrations*', GAR, 2nd Edition, 2017.
[18] Art. 9.1 Uganda Model PSC 1999.

government and 35 percent for the petroleum company).[19] The precise calculations of cost oil and profit oil are negotiated within the contract. The petroleum company will typically have to pay income tax on its share of profit oil.[20]

PSAs typically sit at the top of a chain of contracts. If there is a consortium of parties to a PSA, which is frequently the case, there will often be a joint operating agreement ["**JOA**"] under which two or more parties agree to work together to explore and exploit an area for petroleum.[21] In JOAs, the parties to the agreement can be broadly classified as operators and non-operators. The operator is responsible for the day-to-day management and operation of the field, while non-operators may be involved in decision-making and have obligations to pay and make cash calls to cover operating costs. As a result of such arrangements, disputes often arise in relation to the approval of operations, accounting, failure to pay cash calls, operator duties, and liability. For example, in *Hindustan Oil Exploration Company Limited v Hardy Exploration & Production*,[22] one party to a JOA initiated an arbitration against its joint-venture partners following the shutdown of a petroleum block in India seeking repayment of expenses it had incurred in the project.[23]

Other agreements in the chain of contracts under a PSA can include (1) engineering, procurement, and construction ["**EPC**"] contracts, (2) supply agreements, (3) participation agreements, (4) study and bidding agreements, (5) confidentiality agreements (6) drilling agreements, and (7) transportation-related contracts.

III. PSA-RELATED DISPUTES

PSAs are complex documents regulating complex activities. Due to this complexity, and in the operating environment at play, including factors such as geography, politics, and volatility of oil prices, diverse types of disputes involving PSAs often arise. The form of dispute resolution under PSAs is typically arbitration. This is for a variety of reasons, including the international nature of PSAs (involving cross-border investment), involvement

[19] See, e.g., 1973 PSC between Nigeria National Oil Corporation and Ashland Oil Company https://core.ac.uk/download/pdf/234668092.pdf.
[20] Kirsten Bindermann, '*Production-Sharing Agreements: An Economic Analysis*', Oxford Institute for Energy Studies, October 1999 https://www.oxfordenergy.org/publications/production-sharing-agreements-an-economic-analysis/.
[21] Muhammad Waqas, '*History and development of JOAs in the oil and gas industry*', Oil & Gas Academy, 7 March 2016 http://oilgasacademy.com/blog/joint-operating-agreements/#:~:text=The%20Joint%20Operating%20Agreement%20(JOA,exploit%20an%20area%20for%20hydrocarbons.
[22] Hindustan Oil Exploration Company Limited v Hardy Exploration & Production Inc, (2022) MLJU 617.
[23] Toby Fisher, '*Malaysian challenge fails in Indian oil block dispute*', GAR, 28 April 2022 https://globalarbitrationreview.com/article/malaysian-challenge-fails-in-indian-oil-block-dispute.

of states, length of the contract, complexity of the contract, and the technical nature of the subject matter. Some of the types of disputes that frequently arise under PSAs are discussed below.

A. TERMINATION OR RENEGOTIATION OF PSAS BY THE STATE

The termination or renegotiation of a PSA may occur when a new government comes into power and is not satisfied with the terms of the PSA, especially when oil prices rise. For example, Tanzania passed legislation in 2017 that allowed the government to renegotiate or remove terms from PSAs deemed to be unconscionable by the government.[24] Similarly, in 2010, Ecuador stipulated that the state would own all of the oil and gas produced and replaced the terms of PSAs with flat fees.[25] In 2017, however, Ecuador's new government redirected the government's energy policy towards a more active participation by the private sector in the upstream, downstream, and midstream hydrocarbons sector.[26]

B. ABANDONMENT OF OBLIGATIONS BY PETROLEUM COMPANIES UNDER PSAS

Petroleum companies are required to carry out various exploration activities under a PSA, including seismic surveys, exploration drilling, and appraisal work. If the petroleum company does not make a commercial discovery during the exploration phase, the PSA will terminate and the contract area will be relinquished to the host government. If the petroleum company does make a commercial discovery during this phase then, provided the investor satisfies certain conditions as set out in the PSA, the PSA will move into the production phase. During the production phase, the petroleum company is obliged to develop and exploit the discovered petroleum in accordance with the provisions of the contract. However, disputes arise when petroleum companies withdraw from the blocks when they do not find petroleum or when petroleum prices fall drastically.

[24]The Natural Wealth and Resources (Permanent Sovereignty) Act, 2017 https://www.madini.go.tz/media/Natural-Wealth-and-Resources-Permanent-Sovereignty-Act-2017.pdf.

[25] '*Ecuador increasing state control over oil secto*r', BBC NEWS, 27 July 2010 https://www.bbc.com/news/world-latin-america-10772445.

[26] Jaime P. Zaldumbide, Perez Bustamante and Ponce, '*Oil and Gas regulation in Ecuador: overview*', TRPL, 1 (November 2020). https://uk.practicallaw.thomsonreuters.com/w-028-6002?transitionType=Default&contextData=(sc.Default)&firstPage=true

In *Yemen Oil Gas Co. vs Dove Energy*,[27] for example, Dove Energy, which operated Block 53 in Yemen's Sayun-Masila Basin, issued a notice of withdrawal in 2014, citing low international oil prices, civil unrest, and the failure of the Yemeni Government to address a licence extension. Dove Energy's three partners in the block also withdrew in 2015 after the outbreak of civil war in the country. Shortly thereafter, the Yemeni Oil Ministry filed a USD 100 million International Chamber of Commerce ["**ICC**"] claim against the companies under the block's PSA, contesting the validity of their withdrawal. In a 2019 award, the tribunal found that the three partners had validly exercised their right to withdraw from the block but that Dove Energy's early withdrawal was wrongful. It went on to find all four of the partners jointly and severally liable to pay around USD 30 million to the Yemeni Oil Ministry and the state-owned Yemen Oil & Gas Corporation.[28]

C. GOVERNMENT APPROVAL

As noted above, the central government typically has control over a country's natural resources; in Iraq, however, there is a dispute between the Iraqi Federal Government and the Kurdistan Regional Government ["**KRG**"] as to which entity exercises this authority in Kurdistan. In 2005 Iraq's constitution was ratified to state that oil is "owned by all the people of Iraq" but included only vague principles for management. The Iraqi Government has taken the position that it represents the people and therefore is the exclusive authority in relation to Iraq's petroleum resources; the KRG takes the view that this authority lies in the federal regions and provinces of Iraq. As a result of this issue, in *Monde Petroleum SA v Westernzagros Ltd*,[29] the parties disagreed as to whether a PSA entered into with the KRG had become fully operational and enforceable. In particular, the issue was whether it was sufficient that the KRG had signed and ratified the PSA or whether it was also necessary for the parties to have received a signed copy of a confirmation and support letter from the Iraqi Government. The English Court of Appeal upheld the first-instance decision that the PSA had not become fully operational and enforceable at the relevant time because the confirmation and support letter had not been received from the Iraqi Government. The court based its decision on an interpretation of the relevant agreement as a whole and in light of the commercial background known to the parties at the time when that agreement was executed.

[27] The Ministry of Oil and Minerals of Yemen v Dove Energy, Petrolin, DNO Yemen, MoE Oil & Gas Yemen and the Yemen Oil & Gas Corporation.
[28] Cosmo Sanderson, 'Yemen wins damages over abandoned oil block', GAR, 1 August 2019 https://globalarbitrationreview.com/article/yemen-wins-damages-over-abandoned-oil-block.
[29] Monde Petroleum SA v Westernzagros Ltd., (2016) EWHC 1472 (Comm).

D. TECHNICAL AND FINANCIAL DISPUTES

Technical and financial disputes are among the most common types of disputes that arise in relation to PSAs. These disputes include cost-recovery disputes that often involve issues regarding what costs are recoverable out of which production and at what point they are recoverable. Such disputes can have knock-on consequences in determining the amounts of profit production that each party is entitled to take or lift from the block and sell.

For example, in *Reliance Industries Ltd v Union of India*,[30] the relevant PSAs entitled the contractor to recover development costs by lifting and selling cost of petroleum subject to a cap referred to as the cost recovery limit [“**CRL**”]. The parties disagreed on which costs constituted development costs for these purposes. The contractor contended that the correct input was all development costs as defined by the PSAs based on other language and provisions in the PSA. In contrast, India contended – and the arbitral tribunal agreed – that the correct input was only the development costs below the CRL, not those in excess of that cap, the latter costs therefore falling to be borne by the contractor. The effect of this decision was that the amount of net profitable production was greater because the cost deduction amount was capped and, therefore, smaller, with the result that India was entitled to a greater share of profit petroleum than under the contractor’s interpretation.

Disputes concerning the calculation of profit share in the PSAs are another common type of dispute arising under PSAs. These disputes revolve around accounting and valuation metrics that go into the formulae for calculating the profit shares of which the formulae can often be quite complex. For example, in *Kazakhstan v AGIP Karachaganak BV*,[31] a dispute between an energy consortium and Kazakhstan centred on a “fairness” index in a 40-year PSA signed in 1997. The index determines the amount of profit from the field that goes to Kazakhstan and the consortium respectively.[32] The case ultimately settled with the consortium agreeing to pay Kazakhstan over USD 1 billion and changes being made to the mechanism providing the state with additional revenues from the project.

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[30] Reliance Industries Ltd v Union of India, (2014) 7 SCC 603.
[31] Government of Kazakhstan v. AGIP Karachaganak BV, Eni SpA, et al., PCA Case No. 2017-11.
[32] Cosmo Sanderson, ‘*Kazakhstan to receive billion dollars in settlement’*, GAR, 4 October 2018 https://globalarbitrationreview.com/article/kazakhstan-receive-billion-dollars-in-settlement.

E. DELAYS, DISRUPTIONS, AND CANCELLATIONS, INCLUDING FORCE MAJEURE CLAIMS

Political, environmental, and security issues will often lead to disputes under PSAs. In many such cases, the International Oil Company ["**IOC**"] may invoke force majeure as the reason for the delay, disruption, or cancellation of its obligations under the PSA. In *National Oil Corporation v Libyan Sun Oil Co.*,[33] for example, Sun Oil suspended its performance, invoking the force majeure provision in the PSA. Sun Oil claimed that its personnel, all of whom were U.S. citizens, could not enter Libya after the U.S Government instituted an order declaring that U.S. passports were no longer valid for travel to Libya. The Libyan National Oil Company disputed Sun Oil's claim and called for performance to be continued. The tribunal rendered an award in which it concluded that Sun Oil was not excused from its contractual obligations on the basis of force majeure.

In contrast, in *Gujarat State Petroleum Corporation Ltd. et al v. Republic of Yemen, et al.*,[34] the claimants argued and prevailed on the force majeure claim. This case was an ICC arbitration brought by three Indian companies against Yemen and its Ministry of Oil and Minerals involving a claim of force majeure as a result of the Arab spring protests in Yemen. The companies argued that the security situation, which included local clashes, kidnappings, and attacks in the region, culminating in a declaration of a state of national emergency, deteriorated to an extent that the companies were unable to perform their obligations. The tribunal found that the companies were entitled to terminate under the force majeure mechanism as they had been unable to send their employees to undertake the work required under the agreements or to use required sub-contractors.[35]

F. DISPUTES OVER A CONTRACTOR'S SALE OF ITS INTEREST IN A PSA

Disputes can arise when a petroleum company wishes to sell or farm out part of its operating interest and the state does not approve the transfer or delays approving it. In *Andes Petroleum v. Occidental* ["**Oxy**"],[36] for example, Oxy was awarded a contract in 1999 to explore and

[33] National Oil Corp (NOC) v Libyan Sun Oil Co, First Award of 31 May 1985, 29 ILM 565, 584 (1990), 16 YB Com Arb 54, 57 (1991) https://www.trans-lex.org/204462/_/icc-award-no-4462-yca-1991-at-54-et-seq-/.
[34] Gujarat State Petroleum Corporation Limited, Alkor Petroo Limited, and Western Drilling Constructors Private Limited v. the Republic of Yemen and the Yemen Ministry of Oil and Minerals, ICC Arbitration No. 19299/MCP https://www.italaw.com/cases/4209.
[35] Jack Ballantyne, '*Award against Yemen enforced in US*', GAR, 8 October 2018 https://globalarbitrationreview.com/article/award-against-yemen-enforced-in-us.
[36] Andes Petroleum Ecuador Ltd. v. Occidental Exploration & Production Company No. 1:21-cv-03930 (S.D.N.Y. Nov. 15, 2021) https://www.chamberlitigation.com/cases/andes-petroleum-ecuador-ltd-v-occidental-exploration-production-co.

develop an oil block in Ecuador. Soon after, it agreed to farm out a 40-percent interest in the block to Andes. Oxy was to retain full legal title to the contract until Ecuador approved the transfer. The dispute arose when Oxy refused to pay Andes its 40-percent share of the settlement it obtained from Ecuador's termination of the contract. In its award, an American Arbitration Association ["**AAA**"] tribunal found that the companies' agreement entitled Andes to a 40-percent share in the net amount received from an award that had been rendered against Ecuador, despite that award being premised on Oxy only having standing to bring a claim for 60-percent of the proceeds from the block.[37]

G. STABILISATION AND ECONOMIC EQUILIBRIUM CLAUSES

Another recurring issue in PSA disputes is a scenario in which local laws, regulations, or policies change after the PSA is signed, thereby altering the legal and economic basis on which the parties contracted. Many PSAs attempt to deal with situations of this kind by including stabilization or economic equilibrium clauses, pursuant to which a contractor whose rights under the PSA are materially and adversely affected by a change in law or policy can request that the PSA be modified so as to neutralize the effects of such change. The Tanzania Model PSA, for example, stipulates that should there be a change in legislation or regulations which materially affects the commercial and fiscal benefits afforded by the contractor under the PSA, the parties will consult each other and agree to amendments that are necessary to restore as near as practicable the commercial benefits that existed under the PSA as of the effective date.[38] Stabilization and economic equilibrium clauses can vary in their terms and approach. Early contracts sometimes had "freezing clauses" where the applicable laws and regulations were effectively fixed as they were at the time of the signing of the contract. These ordinarily preclude the host state from changing its legislation. This approach is criticised as an encumbrance on the host state's sovereign legislative prerogative and the permanency of sovereignty over its natural resources.[39] Some clauses may provide protection against negative changes in the legal regime (e.g., new taxes).[40] In other cases, where changes in law substantially alter the economic equilibrium between the parties, there

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[37] Sebastian Perry, '*Occidental ordered to hand over share of ICSID award*', GAR, 4 May 2021 https://globalarbitrationreview.com/occidental-ordered-hand-over-share-of-icsid-award.

[38] Tanzania Model PSA 2004, Art. 30(b).

[39] '*Stabilisation Clauses in International Petroleum Contracts, Illusion or safeguard?*', DELOITTE, April 2014 https://www2.deloitte.com/content/dam/Deloitte/ug/Documents/tax/tax_StabilisationClauses_2014.pdf.

[40] Uganda Income Tax Act, Section 89(B) 2: where there is inconsistency in the taxation of contractors and subcontractor's income from petroleum operations, the provisions of part IXA of the Act and petroleum agreement shall take precedence over other parts of the Act. https://s3.amazonaws.com/rgi-documents/0216350e05e4b5dd46a9abc9d5ce2ffe7cda0610.pdf.

may be an obligation to negotiate and agree to changes to the agreement to restore the equilibrium.

H. IMPOSITION OF NEW TAX REGIMES

Disputes may arise when the state imposes a new tax regime that is rejected or contested by the petroleum company. For example, in *Total E&P Uganda BV v Republic of Uganda*,[41] Total initiated a claim against Uganda under the PSA at issue after the Uganda Revenue Authority imposed a stamp duty on part of the field covered by the PSA. Total argued that the area was exempt from tax under the terms of the PSA, whereas Uganda argued that the Ministry of Energy and Mineral Development had lacked legal authority to grant the exemption.[42] The case ultimately settled.

In contrast, in *Tullow Uganda Operations Pty Ltd v Republic of Uganda*,[43] an UNCITRAL panel ruled in favour of Uganda in a USD 400 million contract dispute with Heritage Oil over capital gains tax levied on the sale of two oil blocks. Heritage filed the claim after the state applied a 30-percent tax on the company's sale of two oil blocks arguing that it did not owe tax because it had already filed its tax returns in Mauritius.[44]

I. DISPUTES OVER DECOMMISSIONING OBLIGATIONS

Under a PSA, a petroleum company will typically have certain decommissioning obligations to restore and reinstate any sites on which it has conducted activities to their original state on the termination or expiry of the PSA.[45] Historically, provisions on decommissioning and remediation in PSAs lacked in detail. More recently, there has been a trend of including more detailed provisions in PSAs that require the petroleum company to prepare an abandonment programme for approval by the host government, carry out that programme to the host government's satisfaction, and establish an escrow account into which funds are paid (or to post other financial security) to secure the investor's decommissioning obligations.[46] Conflicts can arise when these obligations are not met.

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[41] Total E & P Uganda BV v Republic of Uganda ICSID Case No. ARB/15/11.

[42] Cosmo Sanderson, '*Total and Uganda settle tax dispute*', GAR, 19 July 2018 https://globalarbitrationreview.com/article/total-and-uganda-settle-tax-dispute.

[43] Tullow Uganda Operations PTY LTD v Republic of Uganda (ICSID Case No ARB/12/34).

[44] Kyriaki Karadelis, '*Uganda wins tax dispute with Heritage*', GAR, 2 March 2015, https://globalarbitrationreview.com/article/uganda-wins-tax-dispute-heritage.

[45] See, e.g., Indian Model PSA, Art. 14.

[46] Peter D. Cameron and Michael C. Stanley, '*Oil, Gas and Mining: A Sourcebook for Understanding the Extractive Industries*', World Bank Group, 2017 https://openknowledge.worldbank.org/bitstream/handle/10986/26130/9780821396582.pdf?sequence=4.

Indeed, many PSAs in Asia are expected to expire within the next ten years and, since many of these were silent on who bears decommissioning obligations, this is bound to be an emerging potential source of dispute.[47] For example, in 2016, Thailand adopted regulations requiring gas field operators to pay the costs of decommissioning assets they have installed, including those they will transfer to a new operator.[48] As a result of these regulations, a USD 2.5 billion dispute between the Thai Government and Chevron has arisen over who is to pay for decommissioning in the Erawan gas field in the Gulf of Thailand.[49]

IV. TYPES OF CLAIMS AND DAMAGES SOUGHT IN PSA DISPUTES

As illustrated by the various types of disputes discussed above, conflicts in PSAs frequently involve contractual claims arising under the PSA itself or the applicable domestic law. These disputes often involve claims brought by the contractor, but they can also involve counterclaims by the state for the contractor's failure to meet the minimum work obligations, environmental claims, and other types of claims. For example, in *PetroTrans Company Ltd v Federal Democratic Republic of Ethiopia,*[50] an ICC tribunal rejected a USD 1.4 billion claim brought by PetroTrans against Ethiopia after the latter terminated five PSAs that had been awarded in 2011. Under the PSAs, PetroTrans had accepted an obligation to provide or arrange a loan for the Ethiopian Government to be repaid from the government's share of proceeds under the PSAs. After PetroTrans failed to obtain the loan and to fulfil other obligations, the government terminated all five PSAs.[51]

As can also be seen from some of the examples above, claims in PSA disputes are frequently brought on the basis of bilateral or multilateral investment agreements ["**BITs**]" and ["**MITs**"]. BITs and MITs seek to promote and protect investments made by foreign investors in the host countries. Broadly speaking, a foreign investor can initiate an arbitration against a host statement for violations of substantive provisions in an applicable BIT or MIT. These substantive protections frequently include fair and equitable treatment, protection

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[47] Elizabeth Chan, '*Forecasting Energy Disputes in Asia*', Kluwer Arbitration Practice, May 2020 https://www.kluwerarbitration.com/document/kli-aiaj-160102?q=decommissioning%20AND%20oil%20and%20gas.
[48] The Petroleum Act and the Petroleum Income Tax Act 1971 (Amended).
[49] Damon Evans, *'Chevron and Thailand at loggerheads over gas field transfer'*, Nikkei Asia, 20 October 2020 https://asia.nikkei.com/Business/Energy/Chevron-and-Thailand-at-loggerheads-over-gas-field-transfer2#:~:text=DENPASAR%2C%20Indonesia%20%2D%2D%20U.S.%20energy,to%20the%20country's%20energy%20production.
[50] PetroTrans Company Ltd v. Federal Democratic Republic of Ethiopia.
[51] Thomas R. Snider and Jackson Shaw Kern, '*Case Note on PetroTrans Company Ltc v. Ministry of Mines of the Federal Democratic Republic of Ethiopia*', EYIR 2017 https://link.springer.com/book/10.1007/978-3-319-90887-8.

against unlawful expropriation, full protection and security for investments, most-favoured-nation treatment, national treatment, and other protections. A number of disputes relating to PSAs have been subject to arbitrations arising under BITs and MITs.

Regardless of whether claims are brought on the basis of contract, domestic law, BITs, or MITs, the calculation of damages sought for the claims under PSAs can be complex and is typically assessed on a case-by-case basis. The quantification of the damage usually requires the valuation of the companies or projects affected by breaches or violations at issue.[52] The three approaches most commonly relied upon to value a business or an asset are; a) the income or discounted-cash-flow [“**DCF**”] approach, b) the market approach, and c) the asset approach.

The income or DCF approach views the commercial value of an asset as the discounted value of the expected returns (or cash flows) attributable to the asset or business. The DCF approach is widely relied on in international arbitration because it requires calculation of the cash flows associated with the project both in the actual scenario, namely after the liable action, and in the counterfactual scenario (i.e., but for the liable action).[53]

The market approach assumes that the value of an asset or business can be obtained from observed market transactions involving comparable assets or businesses. As oil blocks are unique assets, it is often difficult to obtain the data needed to rely on the market approach effectively. This can be exacerbated by the fact that in countries with underdeveloped financial markets, data might not be readily available and, even when available, it might not be reliable.

The asset approach assumes a rational investor would not pay more than the expected costs to create the asset or business. Because the asset approach depends on historical management decisions taken at a certain time, it is susceptible to management bias, might not be optimal from the perspective of a rational investor at the time the damage was suffered and is usually company specific. This approach also requires historical cost information availability. As already stated, in unstable volatile economies, this information is not always readily available.

V. CONCLUSION

[52] Fabrizio Hernandez, Timothy McKenna and Ralph Meghames, ‘*Damages in the Middle East and Africa: Trends from Recent Cases and Some Challenges*’, GAR, 26 May 2021 https://globalarbitrationreview.com/review/the-middle-eastern-and-african-arbitration-review/2021/article/damages-in-the-middle-east-and-africa-trends-recent-cases-and-some-challenges#footnote-016.

[53] *Id.*

Notwithstanding the growth of renewable forms of energy, the exploration for and development of petroleum resources will continue to attract large-scale investment and be a substantial form of revenue for states around the world for decades to come. Many states will continue to undertake these activities through agreements with private parties in the form of PSAs. While PSAs are a preferred form of granting contract and have several legal attributes, disputes will nevertheless continue to be a fact of life in the PSA context given the conditions in which parties operate under these agreements as surveyed above.