Muhammed Mazeel

Petroleum Fiscal Systems and Contracts

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CONTENTS

FIGURES

TABLES

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This book is the result of long years of work and experience in different countries and fields. Special thanks are due to my small family for the support to continue to write books and publications which comes exclusively from them.

The revenue from this book will be donated to the sick cancer children and help organizations.

Dr Muhammed Mazeel

INTRODUCTION

This book has been written for those interested in petroleum taxation and international negotiations, and the way to carry out successful exploration and development projects. It examines the petroleum fiscal systems that apply in different countries across the world and how these systems govern the economics of exploration and development for oil and gas. Examples are included to give the reader a wide perspective on the implementation of fiscal systems.

The petroleum fiscal system for a country is a combination of the taxation structure established by legislation, together with the contractual framework under which an international oil company operates with the host government. Fiscal systems vary widely between countries and in some countries there is more than one system. The taxation structure may, for example, include royalty payments. The contractual framework may be based on concessionary arrangements or on service and production sharing agreements.

The different types of fiscal system are classified and the factors in these systems that govern exploration and development economics are identified. The practical aspects of petroleum taxation and the relationships between oil companies and governments are examined in detail in a chapter that focuses on the resultant contractor and government take under different fiscal regimes. This book also provides descriptions of how exploration development project economics are calculated and how projects are planned and financed. Legal and operational aspects of contractual and fiscal terms are also considered. Topics are addressed from both industry and government viewpoints to give an understanding of the aims and concerns of both sides.

Much of the material provided here was inspired by questions most frequently asked on the subject. The best answers are supported with specific examples and many of these are used throughout the book.

The summaries and analyses of various fiscal terms and contract conditions are believed to be accurate, and every practicable effort has been made to gather up-to-date information about the current conditions in the countries cited. Examples of fiscal terms used here are drawn from numerous public sources. Confidential information has been carefully excluded.

A glossary is provided to help with industry jargon and non-standardised terminology which can obscure some of the simple concepts covered in this book.

1 CLASSIFICATION OF PETROLEUM FISCAL SYSTEMS

Petroleum fiscal systems whereby the owner of mineral resources receives levies from the extraction company can be classified into two main categories These are concessionary systems and contractual systems as shown in Figure 1-1.

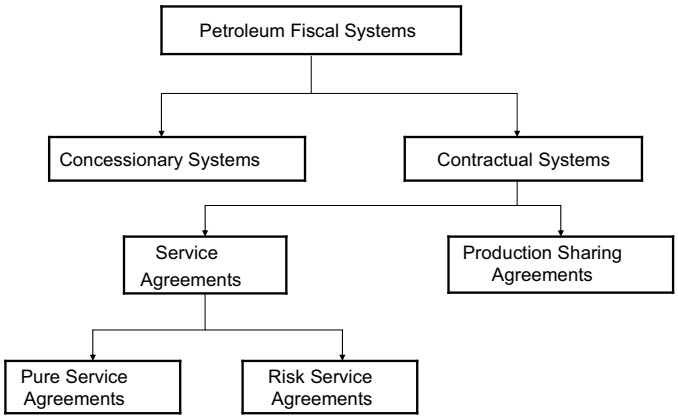

Figure 1.1 Classification of petroleum fiscal systems
(Ref. 7)

In most countries, except the United States of America, the owner of the mineral resources is the government. In the USA, the owners are private individuals or companies that pay taxes on production to the state.

Worldwide, every country has developed its own petroleum fiscal systems to be applied. Under concessionary systems, the government will transfer title of the oil and gas to a company if they are produced. The producing company then pays royalties and taxes.

Contractual systems are in most cases either production sharing agreements or service contracts. The private companies under

contractual systems have the right to receive a share of production or revenues from the sale of oil and gas in accordance with a production sharing agreement (PSA) or a service agreement (SA). The state companies either self produce or share the production and selling of the oil or gas. Revenues then flow into the finance ministries' treasuries.

In most contractual systems, the facilities installed by the contractor within the host government's territory become the property of the state either as soon as they are landed or upon start up or commissioning. Sometimes, the asset or a facility does not pass to the government until the expended costs have been recovered. This transfer of title for asset facilities does not apply to leased equipment or to equipment brought in by service companies.

The difference between service contracts and production sharing contracts depends on whether the contractor receives compensation in cash or in crude. Under a production sharing agreement, the contractor receives a share of production and hence takes title to this crude. In a concessionary system, the transfer of title occurs at the point of export instead of at the wellhead. In a service contract, there is no issue of title since the contractor gets a share of profits rather than production. Under some service agreements, however, the contractor has the right to purchase crude from the government at a discount. Despite the differences between the systems the same economic results are achieved.

When the contractor is paid a fee for conducting exploration and production operations, then this system is a risk service contract. The difference between risk and pure services contracts depends on whether there is a fee on the profits or not. The pure service contract is without risk in exploration and development. Consequently, this is usually used by conservative nationalised companies or by states that have capital but are lacking in technology and management capability.

The different fiscal systems are further illustrated in Figure 1-2, showing the differing points of transfer of title and methods of remuneration.

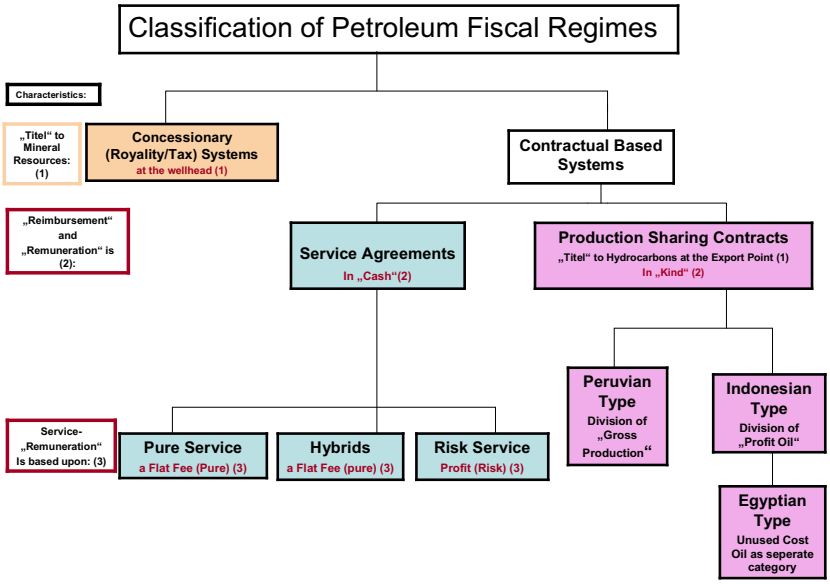

Figure 1.2 Detailed classification of petroleum fiscal systems (Ref. 7)

In addition to the concessionary and contractual systems, which are the two most used systems, there are some further variations that could be considered as types of fiscal system.

The joint venture is a variant fiscal/contractual system. It is used where the national company and contractor company establish a working interest arrangement. This is found in both concessionary and contractual systems.

Technical assistance contracts (TACs) are sometimes used for enhanced oil recovery (EOR) projects or restoration and redevelopment managed under a production sharing agreement or a concessionary system.

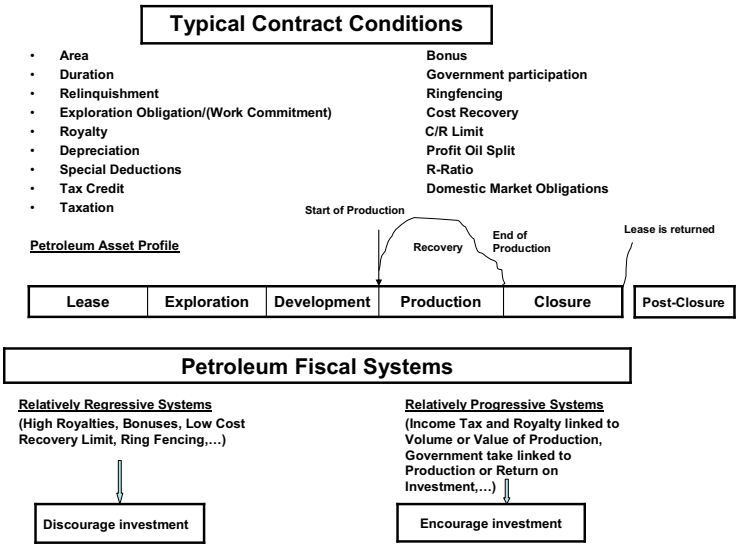

Figure 1.3 Typical project contract conditions
(Ref. 15)

CONCESSIONARY SYSTEMS

Under a concessionary system, the state government grants a Concession or License to an international oil company (IOC) or a consortium which gives rights for a fixed period to explore for and produce hydrocarbons within a certain area (License Area or Block). The IOC may be required to pay a signature bonus or a license fee to the government to secure the Concession or License. Thereafter, the government will obtain compensation usually through royalty and tax payments when hydrocarbons are produced.

Concessionary systems are used by around half of the countries worldwide including the US, UK, France, Norway, Russia, Australia, New Zealand, South Africa, Colombia, and Argentina. These countries have fiscal regimes which vary widely in terms of royalty and tax rates, tiers of taxation and other features such as incentives to promote investment.

Examples of how concessionary arrangements work through paying royalties and taxes to the state in different tiers are shown in Figures 1-4 to 1-6. The first point of government tax may be royalty in the start as in Figure 1-4. This may be followed by local and federal level taxation on income after allowing for operating costs, depreciation, depletion and amortisation. The cash flow projection and the calculation of the net present value (NPV) and internal rate of return (IRR) of a project needs to take account of the full range of royalties and taxes to be applied.

Calculation of Government and Contractor Take

The concession agreement determines how profits will be shared between the government take and the contractor's take. The balance between these is critical for investment in exploration and development activities.

Figure 1-4 shows a typical model of how revenue is distributed under a simple concessionary system. Royalties, deductions, and taxation are subtracted sequentially. The royalty, in this case 40%

of the gross revenues, comes right off the top. The balance remaining after royalties is the net revenue. Certain deductions of contractor's costs are allowable from the net revenue. These deductions include operating costs (Opex), depreciation, depletion, and amortisation (DD&A) and intangible drilling costs (IDCs). Most countries follow this DD&A format but will allow different rates of depreciation or amortisation for various costs. Some countries are liberal in allowing capital costs to be expensed.

Revenue remaining after royalty and deductions is called taxable income. In this example, it is subjected to two layers of taxation with 10% provincial tax and 40% federal tax. Since provincial tax is deductible against federal tax, the overall effective tax rate is 46%.

After tax deductions, the contractor share of profit is USD 6.48, making a share of gross revenues of USD 18.48. This equates to a contractor take of 47%. The profit in this example is USD 28 (USD 40 gross revenues minus USD 12 costs). This is different from contractor's profit margin, which in this example is 16.2% (USD 6.48/USD 40).

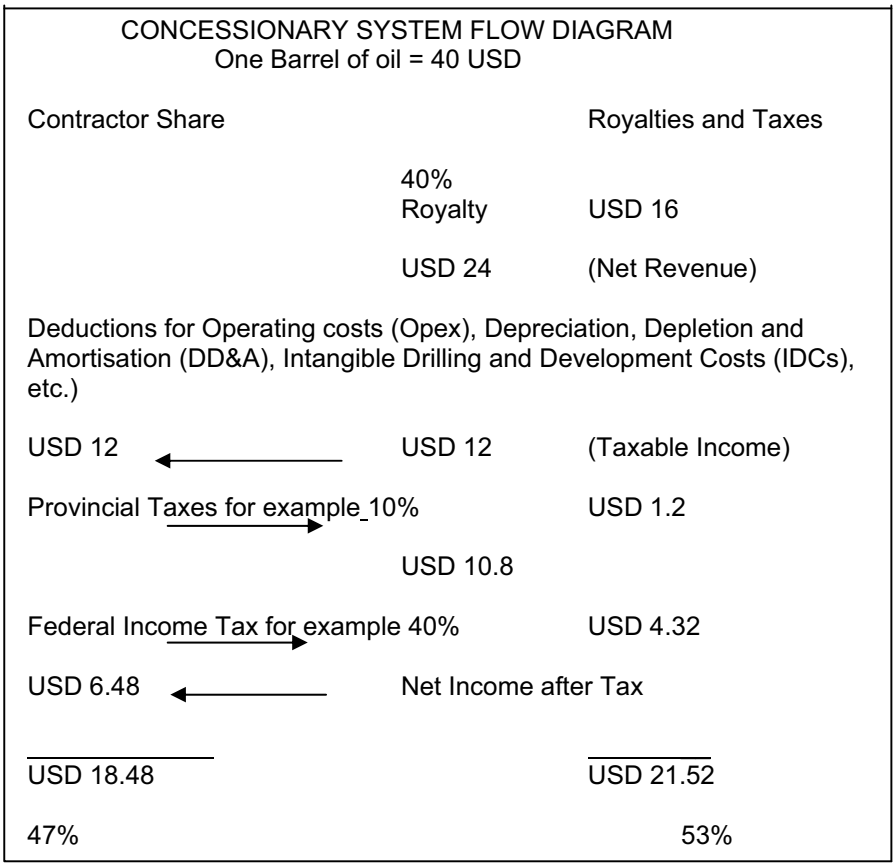

Figure 1.4 Example concessionary system flow diagram

Figures 1-5 and 1-6 further outline terminology and the hierarchy of arithmetic for calculating contractor cash flow. This example gives more of a financial perspective. The cash flow projection is based on the assumption that some classes of capital cost are intangible and are immediately deductible whilst tangible capital costs are depreciated over five years. The development example in Figure 1-5 is for a field with 50 MMbbl of recoverable oil. Total capital costs (Capex) are USD 174 million and estimated operating costs during the life of field (Opex) are USD 300 million. Production of the field is expected to generate gross revenues of

USD 2 billion based on an oil price of USD 40 per barrel. Calculation of the respective takes comes from the cash flow projection. The government take of 52% is derived from 40% royalties plus 20% tax on net profit.

Gross Revenues	USD 2	billion
Total costs	- USD 474	million
Total profit	USD 1.526	billion
Royalties 40%	USD 610.40	million
Taxes 20%	USD 183.12	million
Contractor take	USD 732.48	million
Contractor Take	48%	(732.48 ÷ 1.526)
Government Take	52%	

Figure 1.5 Example calculation of government and contractor take

Basic Equations for Royalty/Tax Systems

Figure 1-6 sets out the basic equations for calculating net cash flow under a royalty/tax fiscal system.

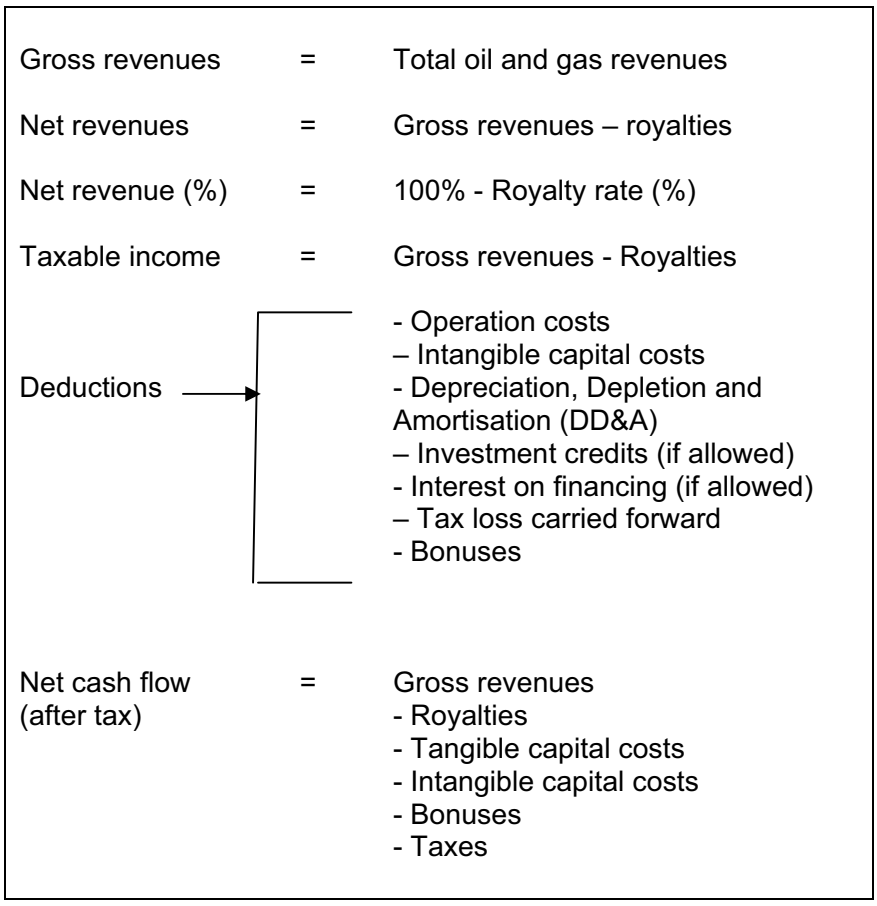

Figure 1.6 Basic equations for royalty/tax systems
(Ref. 7, 8, 9, 10)

CONCESSIONARY SYSTEM STRUCTURE
OIL COMPANY PERSPECTIVE

Terminology	USD/bbl	Royalties, Costs, and Taxes
Wellhead price	USD 40	
	-USD 16	40% Royalty
Net revenue	USD 24	
	- USD 2.4	10% Provincial taxes
	- USD 6	Operating costs
	- USD 1.8	General and administrative costs
	USD 13.8	
Before-tax operating income	- USD 6.20	Depreciation, depletion and amortisation
Before-tax net income	USD 7.6	
	-USD 0.608	8% State income tax
	USD 6.992	
	USD 2.38	34% Federal income tax
After-tax net income	USD 4.62	
	+USD 6.2	Depreciation, depletion and amortisation
	- USD 2.5	Tangible capital costs
After-tax cash	USD 8.32	

Figure 1.7 Concessionary system structure from the oil company perspective

PRODUCTION SHARING CONTRACTS

Production sharing contracts or agreements (PSCs or PSAs) give an international oil company (IOC) or consortium exploration and production rights for a fixed period in a defined Contract Area or Block. The IOC bears all exploration risks and costs in exchange for a share of the oil or gas produced. Production is split between the parties according to formulae in the PSC that may be fixed by statute, negotiated, or secured through competitive bidding. If the IOC does not find a commercial discovery, there is no reimbursement of costs by the government.

The advantage to the host government of this system is that the government will generally receive a large share of the oil or gas. This can be sold and the revenue used according to the government's development programmes and economic needs. Following the introduction of PSCs in Indonesia in the mid 1960s, they are now also used in Malaysia, India, Nigeria, Angola, Trinidad, the Central Asian Republics of the Former Soviet Union, Algeria, Egypt, Yemen, Syria, Mongolia, China, and many other countries.

Essentially, control of the oil remains with the state. National companies are maintained to manage the resource whilst the contractors have execution responsibility. Contractors are required to submit a programme and a budget to be approved by the national company. The type of contact depends on the level of reserves and political economic aims of the host government.

It is important to note in such contracts both the level of percentage of recovery of costs and also the way in which the exploration or development costs may be recovered. If there is costs recovery before sharing of production, the contractor is allowed to recover the costs out of net revenues. The costs recovery limit is the only true distinction between concessionary systems and PSCs. The amount of revenues remaining after royalty and cost recovery, is termed profit oil or profit gas. This is the equivalent of taxable income in a concessionary system. Within the service agreement, it would be termed the service fee